THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1870.

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TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed to it *exclusively*. The insertion elsewhere of *abstracts* of papers *prior* to the publication of the entire paper in this Journal is a violation of this rule. As original articles are *accepted only on this condition*, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, are requested to forward them before the 1st of November.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

Communications postponed for want of room shall receive early attention.

The following works have been received:—

The Unity of Medicine; its Corruptions and Divisions by Law established in England and Wales, their Causes, Effects, and Remedy. By FREDERICK DAVIES, M. D., F. R. C. S., late Surgeon to the St. Pancras and Northern Dispensary. With a coloured chart. Second edition, revised and extended to Ireland and Scotland. London: John Churchill & Sons, 1870.

On Cholera and Choleraic Diarrhœa; their Nature, Cause, and Treatment. Two lectures, delivered at the Church Missionary College, Islington. By GEORGE JOHNSON, M. D., Lond., F. R. C. P., Prof. of Med. in King's Coll., Lond., etc. London: John Churchill & Sons, 1870.

Hypertrophy of the Muscular Walls of the Minute Arteries in Cases of Chronic Bright's Disease. By GEORGE JOHNSON, M. D., F. R. C. P., etc.

Voluntary Patients in Asylums. By STANLEY HAYNES, M. D., Edin., Med. Sup't of Laverstock House Asylum, near Salisbury. Lewes: Geo. P. Bacon.

Medical Diagnosis, with Special Reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Diseases. By J. M. DA COSTA, M. D., Lecturer on Clinical Medicine and Physician to the Pennsylvania Hospital, Fellow of the Coll. of Phys. of Phila., etc. Illustrated with engravings on wood. Third edition, revised. Philadelphia: J. B. Lippincott & Co., 1870.

The Practice of Medicine. By THOMAS HAWKES TANNER, M. D., F. L. S., M. R. C. P., Fell. of Royal Soc. of Literature, etc. etc. Fifth American from the sixth London edition, enlarged and thoroughly revised. Philadelphia: Lindsay & Blakiston, 1870.

A Guide to the Examination of the Urine for the Practitioner and Student. By J. WICKHAM LEGG, M. D., M. R. C. P., Phys. to the St. George, Hanover Square, Dispensary. Second edition. Philadelphia: Lindsay & Blakiston, 1870.

A Treatise on the Theory and Practice of Obstetrics. By WM. H. BYFORD, A. M., M. D., Prof. of Obstetrics and Diseases of Women and Children in the Chicago Medical College, etc. etc. New York: Wm. Wood & Co., 1870.

The Physical Exploration of the Rectum. With an Appendix on the Ligation of Hæmorrhoidal Tumours. By WILLIAM BODENHAMER, A. M., M. D. Illustrated by numerous drawings. New York: William Wood & Co., 1870.

Oxygen Gas as a Remedy in Diseases. Second edition. By ANDREW H. SMITH,

M. D., Member of Acad. of Nat. Sciences, Phila, etc. New York: D. Appleton & Co., 1870.

A Cyclopædia of Quantitative Chemical Analysis. By Frank H. Storer, A. M., Prof. of General and Analytical Chemistry in the Massachusetts Institute of Technology. Part I. Boston: Sever, Francis, & Co., 1870.

Naval Hygiene. By JOSEPH WILSON, Surg. U. S. N. With an Appendix; Moving Wounded Men on Shipboard, by ALBERT C. GORGES, Surg. U. S. N. Reported to the Bureau of Medicine and Surgery. Published by order of the Navy Department, Washington, 1870.

The Medical Herbarium. A Collection of Dried Samples of Medicinal Plants. By T. F. Allen, New York.

Exophthalmic Goitre with Insanity. By J. B. ANDREWS, M. D.

On the Origin of Diabetes, with some New Experiments regarding the Glycogenic Function of the Liver. By W. T. LUSK, M. D., Prof. of Physiology in the Long Island Med. Coll. New York: D. Appleton & Co., 1870.

A Descriptive Catalogue of the Warren Anatomical Museum, Harvard University. By J. B. S. Jackson, M. D., Curator of the Museum; and Shattuck, Professor of Morbid Anatomy. Boston: A. Williams & Co., 1870.

The Raising and Education of Abandoned Children in Europe, with Statistics and General Remarks on that Subject. By ABRAHAM JACOBI, M. D., Member of the Medical Board of the Infants' Hospital, Randall's Island, and of the Nursery and Child's Hospital, N. Y., Prof. of Diseases of Children in the Coll. of Phys. and Surg., N. Y., etc. New York, 1870.

A Medico-Legal Study of the Case of Daniel McFarland. By WILLIAM A. HAMMOND, M. D., Prof. of Diseases of the Mind and Nervous System and of Clin. Med. in the Bellevue Hosp. Med. Coll. New York: D. Appleton & Co., 1870.

The Yellow Fever, Sanitary Condition, and Vital Statistics of New Orleans during its Military Occupation, 1862–65. By SANFORD E. CHAILLÉ, M. D., Prof. of Phys. and Pract. Anat. in the Med. Dept. of the Univ. of Louisiana. Article No. II. New Orleans, 1870.

The Bromides; their Physiological Effects and Therapeutic Uses. By Z. C. MCELROY, M. D. New York: D. Appleton & Co., 1870.

The Journal of the Gynæcological Society of Boston. Vol. II., 1870. Boston: James Campbell.

Some Clinical Observations on the Malignant Diseases of the Uterus. By FORDYCE BARKER, M. D., Prof. of Clin. Midwifery and Dis. of Women in Bellevue Hosp. Med. Coll., etc. New York: William Wood & Co., 1870.

Medical Opinion of Charles A. Lee, M. D., in the matter of Carlton Gates, deceased. New York, 1870.

The Alleged Malpractice Suit of Walsh *v.* Sayre. New York: Geo. H. Shaw & Co., 1870.

In Re William Winter (The Value of Expert Testimony), by John Ordronaux, Prof. of Medical Jurisprudence in the Law School of Columbia College, N. Y.

Transactions of the Indiana State Medical Society, 1870. Indianapolis, 1870.

Constitution and By-Laws of the Medical Society of the District of Columbia, with the Act of Incorporation and List of Members. Washington, 1870.

An Address delivered before the South Carolina Medical Association at its Annual Session held in Columbia, S. C., March 9, 1870. By A. N. TALLEY, M. D., Prof. of Practice of Med. and Obstetrics in the Univ. of South Carolina. Columbia, S. C., 1870.

Man's Power over Nature, and Medicines by which he Aids and Controls the Laws

of Life. An address delivered before the Indiana State Medical Society. By GEORGE SUTTON, M. D., of Aurora, Ind. Indianapolis, 1870.

Forty-fifth and Forty-sixth Annual Reports of the Officers of the Retreat for the Insane, at Hartford, Conn., April, 1870.

First Annual Report of the State Board of Health of Massachusetts, January, 1870. Boston, 1870.

Fourth Annual Report of the Metropolitan Board of Health of the State of New York, 1869. New York: D. Appleton & Co., 1870.

The following Journals have been received in exchange:—

Virteljahrschrift für die Praktische Heilkunde. 1870. Zweiter Band.

Archiv der Heilkunde. 1870. Viertes und fünftes Heft.

Deutsches Archiv für Klinische Medicin. Band 7. Drittes und Viertes Heft.

Centralblatt für die Medicinischen Wissenschaften. 1870. Nos. 26 to 38, except No. 27.

Archiv für Dermatologie und Syphilis. 1870. Drittes Heft.

Giornale Italiano delle Malattie Veneree e delle Malattie della Pelle. 1870. Maggio, Guigno, Luglio.

L'Imparziale. 1870. July, August, September.

Archives Générales de Médecine. Juillet, Août, Septembre, 1870.

Archives de Physiologie Normale et Pathologique. Juillet, Août, 1870.

Annales de Dermatologie et de Syphiligraphie. No. 5, 1870.

Journal de Médecine Mentale. Avril, Mai, Juin, Juillet, Août, 1870.

Revue de Thérapeutique Médico-Chirurgicale. 1870. Nos. 12 to 17.

L'Union Médicale. 1870. Nos. 70 to 107, except Nos. 97 and 98.

La Santé Publique. 1870. Nos. 74 to 85, except No. 82.

Le Mouvement Médical. 1870. Nos. 25 to 36, except No. 30.

Revue de Cours Scientifiques de la France et de l'Etranger. 1870. Nos. 29 to 41.

The Half-Yearly Abstract of the Medical Sciences. January—June, 1870.

The Retrospect of Medicine. January—June, 1870.

The British and Foreign Medico-Chirurgical Review. July, 1870.

The Medical Times and Gazette. July, August, September, 1870.

The British Medical Journal. July, August, September, 1870.

The Lancet. July, August, September, 1870.

The Practitioner. July, August, September, 1870.

Edinburgh Medical Journal. July, August, 1870.

Medical Press and Circular. July, August, September, 1870.

The Dublin Quarterly Journal of Medical Science. August, 1870.

The Glasgow Medical Journal. August, 1870.

The Journal of Cutaneous Medicine. September, 1870.

The Indian Medical Gazette. June, July, 1870.

Canada Medical Journal. June, 1870.

The Dominion Medical Journal. June, July, August, 1870.

The Boston Medical and Surgical Journal. July, August, September, 1870.

The New York Medical Journal. July, August, September, 1870.

The Medical Record. July, August, September, 1870.

The American Journal of Obstetrics. May, 1870.

The Journal of Psychological Medicine. July, 1870.

The American Journal of Insanity. July, 1870.

Archives of Ophthalmology and Otology. Vol. I. No. 2.

The Buffalo Medical and Surgical Journal. June, July, August, 1870.

The Medical Gazette. July, August, September, 1870.

The Medical and Surgical Reporter. July, August, September, 1870.
Half-Yearly Compendium of Medical Science. July, 1870.
The Cincinnati Lancet and Observer. July, August, September, 1870.
The Cincinnati Medical Repertory. July, August, September, 1870.
The American Practitioner. July, August, September, 1870.
The Chicago Medical Examiner. July, 1870.
The Indiana Journal of Medicine. July, August, September, 1870.
The Saint Louis Medical and Surgical Journal. July, September, 1870.
The Detroit Review of Medicine and Pharmacy. July, August, 1870.
The Medical Archives. June, 1870.
The Leavenworth Medical Herald. July, August, September, 1870.
The Northwestern Medical and Surgical Journal. June, July, August, 1870.
Michigan University Medical Journal. July, September, 1870.
The Pacific Medical and Surgical Journal. July, August, September, 1870.
Oregon Medical and Surgical Reporter. June, July, August, 1870.
The Baltimore Medical Journal. July, August, September, 1870.
The Medical Bulletin. July, August, September, 1870.
National Medical Journal. July, 1870.
The Richmond and Louisville Medical Journal. July, August, 1870.
The Nashville Journal of Medicine and Surgery. July, August, September, 1870.
The New Orleans Journal of Medicine. July, 1870.
The Journal of the Gynæcological Society of Boston. July, August, September, 1870.
The American Journal of Syphilography and Dermatology. July, 1870.
The American Journal of Pharmacy. July, September, 1870.
The Druggist's Circular. July, August, September, 1870.
The Journal of Materia Medica. July, August, 1870.
The Pharmacist. July, August, September, 1870.
The Dental Cosmos. July, August, September, 1870.
The American Journal of Dental Sciences. July, August, 1870.
The American Journal of Science and Arts. July, September, 1870.
The American Naturalist. July, August, September, 1870.

Communications intended for publication, and Books for Review, should be sent *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Mr. Henry C. Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Mr. Charles J. Skeet, Bookseller, No. 10 King William Street, Charing Cross, *London;* or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay.

All remittances of money and letters on the *business* of the *Journal* should be addressed *exclusively* to the publisher, Mr. H. C. Lea, No. 706 Sansom Street.

The advertisement sheet belongs to the business department of the *Journal*, and all communications for it must be made to the publisher.

ERRATA.

Page 280, line 14 from bottom, *for* "S. Hertz" *read* "T. Wertz."
" " 2 " " *for* "Darby" *read* "Daily."

CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. CXX. NEW SERIES.

OCTOBER 1870.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. Statistical Account of the Cases of Amputation performed at the Pennsylvania Hospital from January 1, 1860, to January 1, 1870; with the Mortality following this Operation in the Hospital during a period of forty years. By Thomas George Morton, M.D., one of the Attending Surgeons, Surgeon to the Wills Ophthalmic Hospital, etc. . . . 313

II. On the "Synclitism" of the Fœtal Head in Natural Labour. By Hugh L. Hodge, M.D., Emeritus Professor of Obstetrics and Diseases of Women and Children in the University of Pennsylvania. (With two wood-cuts.) 325

III. Observations on Relapsing Fever, as it occurred in Philadelphia in the winter of 1869 and 1870. By John S. Parry, M.D., one of the Attending Accoucheurs to the Philadelphia Hospital. (With two diagrams.) 336

IV. Meckel's Ganglion, and the Propriety of its Removal for the Relief of Neuralgia of the Second Branch of the Fifth Pair of Nerves. By P. S. Conner, M.D., Prof. of Surgical Anatomy in the Med. College of Ohio. 359

V. Sequel of a Case of Exsection of the Trunk of the Inferior Dental Nerve, together with the Second Branch of the Fifth Pair of Nerves beyond Meckel's Ganglion, for severe Facial Neuralgia. By George C. Blackman, M.D., Professor of Surgery in the Medical College of Ohio. 373

VI. Carbonate of Ammonia in the Treatment of Pneumonitis. By A. Patton, M.D., of Vincennes, Indiana. 374

VII. Remarks on the Treatment of Twenty-one Cases of Infantile Capillary Bronchitis, observed in Alexandria, Virginia, during the winter of 1869–70. By Bedford Brown, M.D., of Alexandria, Virginia. . . 378

VIII. The Effects on the Cerebral Circulation of Large Doses of Bromide of Potassium. By Wm. R. Whitehead, M.D., of New York, Physician for Diseases of Women at the Northwestern Dispensary, etc. . . . 381

IX. On Congenital Phimosis. By John H. Packard, M.D., one of the Surgeons to the Episcopal Hospital, Philadelphia. 384

X. Prognosis in Mental Diseases. By I. Ray, M.D., of Philadelphia. . 390

XI. Localization of Diseased Action in the Osseous System. By Harrison Allen, M.D., of Philadelphia. 401

XII. Hydrencephalocele Radically Cured. By Daniel Leasure, M.D., of Alleghany City, Pa., late of New Castle, Pa. 409

XIII. An Additional Method to determine the Degree of Ametropia. By Wm. Thomson, M.D., Assistant Surgeon to the Wills Hospital. Read before the American Ophthalmological Society at Newport, Rhode Island, July 22, 1870. (With a wood-cut.) 414

ART. PAGE

XIV. Poisoning by Strychnia successfully treated by Bromide of Potassium, with some Remarks on the Therapeutical Properties of the Bromides. By Charles B. Gillespie, M. D., of Freeport, Pa. . . 420

XV. Case of Vesico-Vaginal Fistule in a Person labouring under Constitutional Syphilis; with Remarks. By Nathan Bozeman, M.D., of New York. 422

XVI. Cases of Ovariotomy. By Washington L. Atlee, M. D., of Philadelphia, Fellow of the College of Physicians of Philadelphia, etc. (Reported by J. Ewing Mears, M. D., of Philadelphia, Member of the Pathological Society of Philadelphia, etc.) 428

TRANSACTIONS OF SOCIETIES.

XVII. Summary of the Transactions of the College of Physicians of Philadelphia. 435

Gunshot Wound of Lung. By Dr. John H. Brinton. . . . 435

Ulceration of the Skin as an Effect of the Use of the Bromides. By Dr. S. Weir Mitchell. 440

On the Use of Bromide of Lithium. By Dr. S. Weir Mitchell. . 443

Dislocations in Children. By Dr. John Ashhurst, Jr. . . . 445

XVIII. Summary of the Proceedings of the Pathological Society of Philadelphia. 446

Cancer of Testicle. By Dr. Elliott Richardson. 446

Caries of Vertebræ; Abscess opening into Lung. By Dr. Harlan. 446

Excision of Knee-Joint. By Dr. Ashhurst. 447

Supposed Parasitic Body. By Dr. W. H. Pancoast. . . . 447

Abscess of the Brain; Ulcerative Endocarditis; Capillary Embolism of Kidneys and Spleen; Cerebral Hemorrhage; Autopsy. By Dr. Wm. Pepper. 448

Constrictions of Large Intestine from Peritoneal Adhesions; Pyelitis and Cystitis. By Dr. De F. Willard. 451

Gunshot Wounds of Abdominal Viscera. By Dr. C. T. Hunter. . 451

Stricture of Colon, with Ulceration and Perforation. By Dr. E. Richardson. 452

Single Unsymmetrical Kidney, filled with Pus, and forming Abdominal Tumour. By Dr. De F. Willard. 453

Fibroid Tumour of the Uterus. By Dr. F. H. Getchell. . . 456

Testicle (left) from Mr. X., æt. 55. By Dr. Packard. . . . 456

Mammary Cancer. By Dr. John Ashhurst, Jr. 456

Chronic Pleurisy; Paracentesis Thoracis. By Dr. W. W. Keen. . 457

Medullary Carcinoma of Antrum. By Dr. Mears. 458

REVIEWS.

XIX. A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M. D., one of the Physicians to the Pennsylvania Hospital, Consulting Physician to the Children's Hospital, etc.; and William Pepper, M. D., one of the Physicians to the Phila. Hosp., Lecturer on Morbid Anatomy at the Univ. of Penna., Pathologist to the Penna. Hosp., etc. Fourth edition of "Meigs on Children," revised and greatly enlarged. pp. 921. Philadelphia: Lindsay & Blakiston, 1870. 459

XX. Fourth Report of the Metropolitan Board of Health of the State of New York, 1869. 8vo. pp. 594. New York: D. Appleton & Co., 1870. 475

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

XXI. Transactions of the Obstetrical Society of London. Vol. XI. For the year 1869. 8vo. pp. l., 345. London, 1870. 484

XXII. On Aphasia, or Loss of Speech, in Cerebral Disease. By Frederic Bateman, M.D., M.R.C.P., Physician to the Norfolk and Norwich Hospital. 12mo. pp. 124. Lewes: Geo. P. Bacon, 1869. 496

ART. PAGE

XXIII. Lectures on some Subjects connected with Practical Pathology and Surgery. By Henry Lee, F.R.C.S., etc. In two volumes. Third edition. 8vo. pp. xviii., 309, and xx., 386. London: John Churchill & Sons, 1870. 498

XXIV. Lectures on Surgical Pathology delivered at the Royal College of Surgeons of England. By James Paget, F. R. S., D. C. L. Oxon., Sergeant-Surgeon Extraordinary to her Majesty the Queen, etc. Third edition, revised and edited by William Turner, M. B. Lond., Prof. of Anat. in the Univ. of Edin. 8vo. pp. 850. London: Longmans, Green & Co., 1870. 500

XXV. On Hernial and Other Tumours of the Groin and its Neighbourhood; with Practical Remarks on the Radical Cure of Ruptures. By Carsten Holthouse, F. R. C. S., etc. 8vo. pp. xii., 167. London: John Churchill & Sons, 1870. 501

XXVI. On the Law which regulates the Relative Magnitude of the Areas of the Four Orifices of the Heart. By Herbert Davies, M.D., F.R.C.P., Senior Physician to, and Lecturer upon the Theory and Practice of Medicine at, the London Hospital, etc. 8vo. pp. 20. 503

XXVII. On the Causes, Prevention, and Treatment of Infantile Diseases; showing by what Means the present Mortality may be greatly reduced. By Selby Norton, M. D., Fell. Obstet. Soc. Lond. 12mo. pp. 75. London: John Churchill & Sons, 1870. 505

XXVIII. Medical Diagnosis, with Special Reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Disease. By J. M. Da Costa, M. D., Lecturer on Clin. Med., and Phys. to Penn. Hosp., etc. Illustrated with engravings on wood. Third edition, revised. 8vo. pp. 844. Philadelphia: J. B. Lippincott & Co., 1870. 506

XXIX. Transactions of American State Medical Societies.

1. Transactions of the South Carolina Medical Association. Annual Session, 1870. (Second Meeting since Reorganization.) 8vo. pp. 56.
2. Transactions of the Indiana State Medical Society, 1870. 8vo. pp. 165.
3. Transactions of the Minnesota State Medical Society. Session of 1870. 8vo. pp. 46. 507

XXX. Recent Surgical Pamphlets.

1. Sarcomatous Fibroma of Upper Jaw (Epulis?) successfully operated upon. By R. A. Kinloch, M.D., Prof. of Surg. in the Med. Coll. of the State of South Carolina, Charleston, S. C. 8vo. pp. 7.
2. Liquid Glass (Silicate of Potash) as a Surgical Dressing for Immovable Apparatus, and Hair as a Suture and Ligature. By J. T. Darby, M. D., Professor of Anatomy and Surgery in the University of South Carolina, Columbia, S. C. 8vo. pp. 24.
3. On Amputation through the Knee-joint. By William MacCormac, A. M., M. D., M. R. I. A., President of the Ulster Med. Soc., Surg. to Belfast Gen. Hosp., etc. 8vo. pp. 22. (With a photograph.) . 510

XXXI. A Treatise on Intraocular Tumours; from Original Clinical Observations and Anatomical Investigations. With one Chromo-Lithographic and fifteen Lithographic Plates. By H. Knapp, M. D., late Prof. of Ophthal. and Surg. to Ophthal. Hosp. in Heidelberg. Translated by S. Cole, M. D. 8vo. pp. 323. NewYork: William Wood & Co.,1869. . 512

XXXII. On the Etiology of Bright's Disease, with Remarks on the Prophylaxis. By Gouverneur M. Smith, M. D., Physician to the New York Hospital, etc. 8vo. pp. 34. 517

XXXIII. New Facts and Remarks concerning Idiocy: By Edward Seguin, M. D. 8vo. pp. 47. New York: Wm. Wood & Co., 1870. 518

XXXIV. Summer Mortality in the Cities of the United States. By Stephen Rogers, M. D. 8vo. pp. 18. 519

XXXV. The Normal Temperature in Children. By James Finlayson, M. B., late House Surgeon to the Clinical Hosp. and Dispensary for Children, Manchester. 8vo. pp. 19. Glasgow: Dunn & Wright,1869.

On the Temperature of Children in Phthisis and Tuberculosis. By James Finlayson, M. D. 8vo. pp. 32. Glasgow: Dunn & Wright, 1869. . . 520

ART. PAGE
XXXVI. Archiv für Dermatology und Syphilis. Herausgegeben von Dr. H. Auspitz, Docent an der Universität Wien, und Dr. Filip J. Pick, Docent an der Universität Prag. II. Jahrgang, Drittes Heft. 8vo. Seit. 172. Prag, 1870. 521
XXXVII. Chloroform *versus* Pain, and Paracentesis of the Bladder above the Pubes. By the late J. H. James, F.R.C.S., etc. etc. 8vo. pp. 61. London: John Churchill & Sons, 1870. 523
XXXVIII. Variola: Causes, Nature, Prophylaxis, and Treatment. Report of the Committee appointed by the St. Louis Medical Society, Jan. 15, 1870. By G. Spinzig, M. D.
Conférence Médicale de Paris pour l'examen de la Question de la Vaccine. Cinquième Séance (22 Juin, 1870) Procès-Verbal. Tribune Médicale, 26 Juin, 1870. 524
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QUARTERLY SUMMARY
OF THE
IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

Anatomy and Physiology.

PAGE
1. On the Functions of the Sympathetic System of Nerves. By Dr. Edward Meryon. . . 527
2. Rapidity of the Absorption of Carbonic Oxide by the Lungs. By M. Gréhant. . . . 527
3. Physiological Action of Carbonic Acid. By Dr. Leven. . 528
4. Action of Chloroform on the Colour of the Blood. By Prof. Paul Bert. 528
5. Production of Bone from Medulla. By M. Baikow. . . 529
6. Pre-pubic Lymphatic Gland. By M. Durac. 529
7. Kryptophanic Acid. By Dr. Thudichum. 529

Materia Medica, General Therapeutics, and Pharmacy.

8. Experiments on the Effects of Alcohol (Ethyl Alcohol) on the Human Body. By E. A. Parkes, M.D., F.R.S., and Count Cyprian Wollowicz, M.D. . . 530
9. On the Place of Wines in the Diet of Ordinary Life. . . 533
10. Mode of Action of Conia. By Drs. Dyce Brown and Alexander Dyce Davidson. . . . 534
11. Physiological Action of Tobacco. By Prof. Sée. . . 534
12. Anæsthetic Properties of Carbolic Acid. By Mr. Erasmus Wilson. 534
13. Lactate of Iron. By Mr. Jas. C. Dickinson. 535
14. Medicinal Pepsin. By Mr. R. V. Tuson. 535
15. New Vesicant. By M. Delpech. 535
16. Report of the Committee of the Royal Medical and Chirurgical Society appointed to investigate Bain's and Pacini's Method of restoring Suspended Animation. 536

Medical Pathology and Therapeutics, and Practical Medicine.

17. Revaccination. . . . 536
18. Anosmia. By Dr. Notta. . 537
19. Mucous Disease. By Dr. Walter Whitehead. 538
20. Stertor, its Pathology and Treatment. By Dr. L. Bowles. 538
21. Hæmophilia. By Dr. Assmann. 539

PAGE

22. Notes of Cases of Relapsing Fever. By Dr. Claud Muirhead. 539
23. Recurrent (Relapsing) Fever; Crisis and Delirium. By Dr. Frantzel. 540
24. Pathology and Treatment of Scarlet Fever. By Dr. Renfrew. 541
25. Delirium in Scarlet Fever. By Dr. J. K. Spender. . . . 541
26. Clinical Study of the Disease of the Kidneys in Scarlet Fever. By Dr. L. Thomas. 542
27. Pyæmic Inflammation of the Joints as a Complication of Scarlet Fever. By Dr. J. K. Spender. 543
28. Value of a Large Supply of Food in Nervous Disorders. By Dr. G. F. Blandford. . . 544
29. Action of Hydrate of Chloral in Paralysis of the Insane and other forms of Insanity. By Dr. Wm. Macleod. 546
30. Treatment of Local Paralysis by Subcutaneous Injection of Strychnia. By Mr. Barwell. . 547

PAGE

31. Treatment of Hæmoptysis. By Dr. Dyce Duckworth. . . 547
32. Bromide of Potassium in Ague. By Dr. Moxon. . . . 548
33. Somnambulism cured by Bromide of Potassium. By Dr. B. Levi and Dr. Pelizzo. . . 548
34. On the Use of Arsenic in certain Painful Affections of the Stomach and Bowels. By Dr. Arthur Leared. . . . 548
35. Therapeutics of Chronic Constipation. By Dr. J. K. Spender. 549
36. Infusion of Mustard in Obstinate Hiccup. By Dr. Jaurariz. 549
37. Cannabis Indica in Menorrhagia and Dysmenorrhœa. By Dr A. Silver. 550
38. Rhinoscleroma. By Prof. Hebra and Dr. Weinlechner. . . 550
39. On the Anatomy of a Case of Molluscum Fibrosum. By Dr. C. Hilton Fagge. . . . 551
40. Stenosis Arteriæ Pulmonalis. By Dr. Nobiling. . . . 551
41. Case of Essential Dropsy. By Dr. A. Wernick. . . . 551

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

42. Results of the Greater Amputations. By Mr. Spence. . . 552
43. Position as a Means of Arresting Traumatic Hemorrhage. By Mr. Geo. Y. Heath. . . . 553
44. On the Removal of Subcutaneous Tumours without Hemorrhage or Loss of Skin. By Mr. Henry Lee. 554
45. Method of treating large Granulating Surfaces by transplanting Epidermis. By M. Guyon. 555
46. Stricture of the Œsophagus successfully treated by Dilatation. By Dr. Morell-Mackenzie. 555
47. Treatment of Enlarged Lymphatic Glands. By Mr. Furneaux Jordan. 556
48. Case of Necrosis of the Femur without External Inflammation. By Mr. Paget. 556
49. Removal of a Polypus of the Larynx by Ablation of the Thyroid Cartilage. By M. Krishaber. 557
50. New Operation for Bony Anchylosis of the Hip-joint. By Mr. Adams. 557
51. Enterotomy in Cases of Ileus. By Dr. Frantzel. . . . 558

52. Herniotomy after supposed Successful Reposition of Bowel by Taxis. By Dr. M. Mueller. 558
53. Operation for Strangulated Hernia without opening the Sac. By Mr. Geo. Y. Heath. . . 559
54. Treatment of Hæmorrhoids by Taxis. By Dr. Maclean. . . 559
55. Improved Operation for Fistula in Ano. By Mr. Weeden Cooke. 560
56. Puncturing the Bladder above the Pubes. By Prof. Dittell. . 560
57. Effects of Shortness of the Frænum of the Prepuce. By M. Jansen. 561
58. Observations on the Treatment of Gonorrhœal Orchitis by Debridement of the Testicle, as recommended by Vidal (de Cassis). By M. Salleron. . . 561
59. A New View of the Origin and Propagation of the Venereal Disease and its Successful Treatment by Inoculation with Vaginal Discharge. By Mr. J. Morgan. 562
60. Investigations as to the Cause of the great Gravity of Anthrax and Furuncles of the Face. By J. L. Reverdin. 563

Ophthalmology.

61. Calabar Bean in Suppuration of the Cornea. By M. Galezowski. 563
62. Luxation of the Lens; Mechanism of Accommodation. By M. Dufour. 563
63. Structure of the Zonula Ciliaris. By Dr. F. Merkel. . . 564
64. Lymphatic Spaces of the Eye. By Prof. Schwalbe. . . . 564

Midwifery.

65. Dystocia depending on the Simultaneous Presentation of the Two Heads of Twins. By Dr. Rinter. 565
66. On the Influence exerted by Chloral on the Pain of Parturition. By E. Lambert, Esq. . 565
67. Duration of Gestation. By Dr. Ahlfeld. 566
68. Ovum in a Case of Blighted Embryo. By Dr. McClintock. 567
69. Pregnancy without Menstruation. By Dr. Jas. Young. . 568
70. Atresia Vaginæ, and Retention of Menses for Ten Years, with Enlargement of Uterus from the Blood accumulated within its Cavity, causing it to reach a Hand's Breadth above the Umbilicus; commencing Rupture of one of the Fallopian Tubes; Puncture of Uterus by an Exploring Trocar; favourable termination. By Dr. P. Halbertsman. 568
71. On some of the Dangers attending the Use of Tangle Tents. By Dr. L. Aitken. 568
72. Introduction and Removal of Uterine Tents. By Dr. L. Aitken. 569
73. Abnormal Dilatation of the Uterine Cervical Canal. By Dr. Muller. 570
74. Retroversion of Uterus cured by Local Depletion. By Dr. Meadows. 571
75. Perforation of the Uterus by a Uterine Sound. By Dr. Hoening. 571

Medical Jurisprudence and Toxicology.

76. Chloral as an Antidote to Strychnia. By Dr. J. H. Bennett. 572
77. Experiments upon Monkeys with Strychnia. By Dr. Theobald Ringer. 572
78. Blood-Pictures. By Dr. Day. 572

AMERICAN INTELLIGENCE.

Original Communications.

On the Application of Carbolic Acid as a Local Anæsthetic in Surgical Operations. By J. H. Bill, M.D., Surg. U. S. Army. . 573
Hydrate of Chloral as an Anæsthetic in Labour. By W. J. C. Du Hamel, M. D., of Baltimore. 574
Rupture of the Stomach and Spleen from a Fall, without External Evidences of Injury. By I. Somers Buist, M. D., of Charleston, S. C. 575
Complete Division of the Trachea and Wounding of the Œsophagus in attempted Suicide; Recovery. By Wm. R. Van Hook, M. D., of Illinois. . . . 576

Domestic Summary.

Glycogenic Function of the Liver. By Dr. W. T. Lusk. . . . 577
Treatment of Croup. By Dr. Fordyce Barker. 578
Sulphites in Phlegmonous Angina. By G. G. Tyrrell, L.R.C.S.I. . 579
Traumatic Tetanus successfully treated by Calabar Bean and Hydrate of Chloral. By Dr. Thomas G. Duncan. . . 579
Sebaceous Cysts of the Eyelids. By Dr. J. J. Chisolm. . . 580
On the Simultaneous Occurrence of a Soluble Lead Salt and free Sulphuric Acid in Sherry Wine; with Observations on the Solvent Action of Alcoholic Saline Solutions upon Sulphate of Lead. By Prof. F. H. Storer. . . 580

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1870.

ART. I.—*Statistical Account of the Cases of Amputation performed at the Pennsylvania Hospital from January* 1, 1860, *to January* 1, 1870; *with the Mortality following this Operation in the Hospital during a period of forty years.* By THOMAS GEORGE MORTON, M. D., one of the Attending Surgeons, Surgeon to the Wills Ophthalmic Hospital, etc.

STATISTICAL tables showing the mortality following major amputations at the Pennsylvania Hospital during a period of twenty years (from 1830 to 1850) have been published by Dr. George W. Norris, in the 22d, 26th, and 28th volumes of this Journal.

In the Pennsylvania Hospital Reports for 1868, another table by the same author will be found containing these statistics for another decade, viz., to 1860; while the following tables have been drawn up in a manner similar to those of Dr. Norris, and represent, as accurately as could be obtained, the last ten years' operations, viz., to 1870.

A large increase will be noticed in the number of primary amputations performed during the last ten years; this is owing in a measure to the vast number of accidents constantly occurring in the mining districts, and which can now be brought immediately to the hospital; while from our street railroads, and the general manufacturing establishments of the city, a large number of the most serious form of injuries are almost daily admitted.

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1860							
1	Jan. 14	48	Bernard Kelly	Compound comminuted fracture of leg	Thigh	Immediate	Died	Feb. 6, 1860
2	March 9	36	John O'Brien	Mortification of foot following fracture	Leg	.....	Cured	Oct. 6, 1860
3	" 23	35	Henry Stoll	Ununited fracture of femur	Thigh	.....	"	March 21, 1861
4	" 26	18	Patrick Morton	Abscess of axilla	Shoulder-joint	.....	"	Dec. 11, 1860
5	" 28	26	Thomas Miller	Forearm torn off	Forearm	Immediate	"	May, 14, 1860
6	April 17	13	Fergus Bottomley	Lacerated wound of hand	Hand at wrist-joint	"	"	June 14, 1860
7	" 18	27	Charles H. Shinn	Foot torn off at ankle	Leg	"	"	June 14, 1860
8	" 27	23	Adam Ferguson	Caries of ankle	Leg	.....	"	June 7, 1860
9	May 16	50	John Reedy	Comp. comminuted fracture of leg and foot	Knee-joint	.....	Died	June 9, 1860
10	" 23	19	Terrence Beirne	Lacerated wound of foot	Foot (Pirogoff)	Immediate	Cured	Aug. 23, 1860
11	" 23	19	" "	Ulcer of stump	Leg	.....	"	Aug. 23, 1860
12	" 31	38	Thomas Leonard	Leg torn off	Leg	Immediate	"	July 20, 1860
13	" 31	60	Hannah McKinney	Caries of wrist and hand	Forearm	.....	"	July 12, 1860
14	June 6	38	Isaiah M. Heston[1]	Fungus hæmatodes of thigh	Hip-joint	.....	"	July 24, 1860
15	" 14	22	John Montgomery	Compound comminuted fracture of hand	Hand at wrist-joint	Immediate	"	July 19, 1860
16	July 3	48	John Casey	" " " of leg	Leg	"	Died	Aug. 6, 1860
17	" 4	19	Charles Dorshell	Gunshot fracture of wrist	Forearm	"	Cured	Aug. 31, 1860
18	" 20	40	Daniel Larkey	Fracture of tibia, rupture of ligaments of the knee, followed by caries of ankle	Leg	.....	"	June 7, 1861
19	Sept. 29	9	Margt. McFarland	Gunshot wound of forearm	Forearm	Immediate	"	Nov. 26, 1860
20	Oct. 2	44	John McKeon	Crushed hand	Forearm	"	"	Oct. 29, 1860
21	" 16	40	George Brown	Compound comminuted fracture of forearm	Arm	"	"	Nov. 24, 1860
22	" 19	38	Gottlieb Bassett	Lacerated hand and forearm	Hand at wrist-joint	"	"	Dec. 17, 1860
23	" 21	17	William Scholfield	Gunshot wound of forearm	Arm	"	"	Nov. 28, 1860
24	" 28	17	Aug. Donnellson	" " of forearm and arm	Arm	"	"	Nov. 28, 1860
25	" 30	20	Wilson B. Smith	Caries of foot and ankle of 14 years' duration	Leg	.....	"	Dec. 21, 1860
26	Dec. 8	60	John Dallas	Crushed arm and forearm	Arm	.....	Died	Dec. 16, 1860
27	" 10	30	James Howard	Lacerated wound of wrist-joint	Forearm	Immediate	Cured	March 12, 1861
	1861							
28	March 26	34	Thomas O'Brien	Compound comminuted fracture of hand	Forearm	"	"	May 6, 1861
29	" 28	33	Jos. Brandt	Lacerated hand	Hand, wrist-joint	"	"	May 30, 1861
30	" 31	33	Patrick Gallagher	Compound comminuted fracture of leg	Leg	"	Died	April 2, 1861
31	April 4	35	Patrick Meehan	" " " of ankle	Leg	.....	Cured	June 10, 1861
32	" 11	30	Patrick Welch	" " " of forearm	Forearm	Immediate	"	June 10, 1861
33	May 15	17	William Evans	Encephaloid tumour of leg	Thigh	.....	"	Aug. 16, 1861

[1] Am. Journ. Med. Sciences, July, 1866.

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1861							
34	May 28	43	Richard Wilson	Frosted feet	Foot, partial	.....	Cured	Sept. 23, 1861
35	June 7	34	Thomas Forbes	Compound comminuted fracture of thigh	Thigh	Immediate	"	Nov. 21, 1861
36	" 13	24	Jas. McMahon	" " " of arm	Arm	"	"	Oct. 7, 1861
37	" 13	4	Elizabeth Dillon	Lacerated foot	Foot, partial	"	"	July 25, 1861
38	" 21	4	John Harrison	" " and ankle	Leg	"	"	July 25, 1861
39	" 26	5	Jos. Coleman	Compound fracture of arm	Arm	"	"	July 25, 1861
40	" 28	38	George Ward	Compound comminuted fracture of foot	Leg	"	"	Aug. 1, 1861
41	July 2	50	Patrick Kennedy	" " " of leg	Leg	"	"	Oct. 7, 1861
42	" 4	29	John Smith	Gunshot wound of hand	Hand	"	"	Oct. 3, 1861
43	" 9	10	James Shannon	Compound comminuted fracture of arm	Arm	"	"	Sept. 9, 1861
44	" 11	50	William Grimes	" " " of leg	Leg	"	Died	July 13, 1861
45	" 18	16	Robert Diegen	Lacerated forearm	Arm	"	Cured	Oct. 3, 1861
46	" 29	14	G. Dietze	Compound fracture of humerus	Arm	"	Died	Sept. 10, 1861
47	Aug. 20	12	John Carroll	Crushed arm	Shoulder-joint	"	Cured	Oct. 7, 1861
48	" 30	26	Gottlieb Esterley	Compound fracture of wrist and hand	Forearm	"	"	Oct. 3, 1861
49	" 30	10	Henry Cummings	" comm. fract. of foot and ankle	Leg	"	"	Dec. 9, 1861
50	" 31	48	Daniel James	" " " of leg and foot	Leg	"	"	Aug. 22, 1862
51	Oct. 3	13	Bernard Clarke	Complicated fracture of ankle	Leg	"	"	Dec. 23, 1861
52	Nov. 4	10	James Langham	" " "	Leg	"	"	Jan. 9, 1862
53	" 23	23	Jacob Diemer	Compound comminuted fract. of left leg	Thigh	"	"	Aug. 26, 1862
54	Dec. 3	27	John H. Wiggins	Necrosis of humerus	Shoulder-joint	.....	"	Jan. 8, 1862
	1862							
55	Jan. 1	12	Henry Boyd	Crushed hand	Hand, wrist-joint	Immediate	Cured	March 24, 1862
56	March 1	28	John Huffler	Compound comminuted fracture of arm	Arm	"	Died	March 4, 1862
57	" 13	19	Sanford W. Albert	Deformed leg	Leg	.....	Cured	July 25, 1862
58	" 14	26	Michael Keenan	Compound comminuted fracture of forearm and fracture of arm	Arm	Immediate	"	May 5, 1862
59	April 12	64	John Kirsch	Compound fracture of leg	Leg	"	Died	June 12, 1863
60	" 15	36	Edw. Schufhaatel	Lacerated hand	Hand, wrist-joint	"	Cured	May 29, 1862
61	" 17	18	Thomas Price	Mortified foot	Leg	.....	"	July 10, 1862
62	May 9	13	Alex. Kennedy	Compound fracture of ankle	Leg	Immediate	"	Aug. 7, 1862
63	" 10	48	Daniel James	Ulcer of stump	Leg	.....	"	Aug. 22, 1862
64	" 26	30	Patrick Barren	Compound fracture of both legs and feet	Right foot (Lisfranc)	Immediate	Died	May 27, 1862
65	" 26	30	" "	" " " "	Left leg	"	"	May 27, 1862
66	June 10	16	Isaac Miller	Compound fracture of arm	Arm	"	"	Sept. 29, 1862

No.	Admission.	Age	Name.	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1862							
67	July 7	20	Michael Haggarty	Necrosis	Leg	.....	Cured	Aug. 18, 1862
68	" 15	62	Daniel McGonegle	Crushed foot	Leg	Immediate	Died	July 17, 1862
69	" 24	13	Andrew Crawford	" leg	Thigh	"	Cured	Nov. 13, 1862
70	Aug. 3	28	Michael Hegan	Popliteal aneurism	Thigh	.....	Died	Aug. 6, 1862
71	" 8	35	David Martin	Crushed foot	Foot, partial	Immediate	"	Aug. 13, 1862
72	" 9	17	Dennis O'Donnell	" "	Leg	"	Cured	Dec. 22, 1862
73	" 19	17	Cornelius Strain	" hand	Wrist-joint	"	"	Nov. 12, 1862
74	" 23	36	George Fisher	" foot	Foot, partial	"	"	Jan. 9, 1863
75	" 28	9	John Nesper	" "	Foot (Pirogoff)	"	"	Nov. 17, 1862
76	Sept. 24	34	Samuel M. Lane	Compound comminuted fracture of arm	Shoulder-joint	"	Died	Sept. 25, 1862
77	" 29	17	William J. Witler	Lacerated hand	Forearm	"	Cured	Nov. 25, 1862
78	Oct. 4	35	Owen McGinley	Compound comminuted fracture of leg	Leg	"	Died	Oct. 4, 1862
79	" 13	32	Eliza Conway	Caries of foot and ankle	Leg	.....	Cured	April 27, 1863
80	Nov. 14	22	Patrick Heenan	Crushed feet	Leg, left	Immediate	"	Jan. 26, 1863
81	" 14	22	" "	" "	Foot, partial	"	"	Jan. 26, 1863
82	" 30	13	John McKnight	" "	Leg	"	"	March 9, 1863
83	Dec. 18	15	Michael Allen	Compound comminuted fracture of ulna and laceration of arm	Forearm	"	"	Feb. 2, 1863
84	" 19	10	Thomas Weeks	Crushed leg	Leg	"	"	Feb. 19, 1863
85	" 25	9	Michael Conway	Compound comminuted fracture of tarsus	Leg	"	"	April 2, 1863
	1863							
86	Jan. 23	22	William A. Harvie	" " " of arm	Shoulder-joint	"	Died	Jan. 26, 1863
87	Feb. 12	42	William Conner	Frost-bite (foot)	Leg	.....	Cured	June 2, 1863
88	" 21	14	James Duen	Compound comminuted fracture of leg	Leg	Immediate	Died	March 3, 1863
89	" 26	21	Charles C. Laws	Mortified foot (frost-bite)	Leg	.....	"	April 28, 1863
90	March 3	42	William Browers	Deformed foot	Foot (Pirogoff)	.....	Cured	May 25, 1863
91	" 13	43	Jacob Swope	Sloughing after lacerated foot	Foot (Lisfranc)	.....	"	July 27, 1863
92	" 17	13	William J. Walton	Crushed hand	Wrist-joint	Immediate	"	May 11, 1863
93	" 20	16	Joseph Bowers	Lacerated hand and wrist	Forearm	"	"	April 25, 1863
94	" 23	18	John Fritz	Compound comminuted fracture of fibula	Leg	"	Died	April 18, 1863
95	April 23	22	Adam Bourker	Compound fracture of humerus	Arm	.....	"	May 2, 1863
96	" 25	19	William Dunn	Lacerated hand and wrist	Forearm	Immediate	Cured	May 25, 1863
97	May 5	45	John Hargrave	Lacerated hand	Forearm	"	"	July 6, 1863
98	" 7	15	Daniel Coleman	Comp. comminuted fract. of radius and ulna	Arm, upper third	"	"	Aug. 3, 1863
99	" 9	34	William Mattock	Crushed foot	Leg, upper third	"	Died	May 21, 1863

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1863							
100	May 21	William Totheroh	13	Crushed elbow	Arm	Immediate	Cured	July 27, 1863
101	" 29	William Webster	23	" femur (middle)	Thigh	"	Died	June 1, 1863
102	June 6	Michael Ryan	16	Compound fracture of ankle-joint	Leg	"	Cured	Sept. 8, 1863
103	" 13	Patrick Conner	37	" " of leg	Leg	"	"	Oct. 8, 1863
104	" 27	Jos. P. Helpine	8	Compound fracture of radius and tibia, upper third	Knee-joint	"	Died	July 29, 1863
105	July 11	Patrick Boyle	14	Compound fracture of os calcis	Leg	"	Cured	Oct. 15, 1863
106	" 14	Wesley Earley	14	Crushed leg	Thigh	"	"	July 28, 1863
107	" 18	James Maxwell	10	" foot	Foot (Pirogoff)	"	"	Dec. 24, 1863
108	" 18	" "	10	" hand	Forearm	"	"	Dec. 24, 1863
109	" 29	Fred. Cobden	38	Compound fracture of leg	Thigh	"	Died	July 30, 1863
110	" 30	John Woolsey	16	" " of hand	Hand	"	Cured	July 31, 1863
111	Aug. 1	Patrick Curren	22	" " of arm	Arm	"	"	Oct. 3, 1863
112	" 10	Morris Launcey	12	" " of foot	Leg	"	"	Nov. 21, 1863
113	" 19	Patrick Donnelly	53	" " of foot	Foot (Chopart)	"	Died	Aug. 23, 1863
114	" 20	John Ryan	32	" " of hand	Forearm	"	Cured	Oct. 24, 1863
115	" 21	Thomas Singer	14	" " of forearm	Forearm	"	"	Oct. 5, 1863
116	" 31	Peter Robinson	32	Comp. comm. fract. of radius and ulna	Arm	"	Died	Sept. 4, 1863
117	Sept. 8	John Wise	27	" " " of leg	Leg	"	Cured	Jan. 26, 1864
118	" 19	Charles Higgins	15	" " " of leg	Knee-joint (patella left in)	"	"	Dec. 16, 1863
119	Oct. 10	Henry Chamberlain	10	" " " of leg	Leg, middle	"	"	Nov. 30, 1863
120	" 24	John Barnet	33	Gunshot wound of hand	Hand	"	"	Dec. 29, 1863
121	Dec. 26	Michael Hurley	45	Crushed hand	Forearm	"	"	Feb. 6, 1864
	1864							
122	Jan. 18	William Surran	26	Crushed arm	Arm	"	Died	April 5, 1864
123	Feb. 6	James Patterson	12	" "	Arm	"	Cured	June 20, 1864
124	" 17	Charles Leaf	38	Compound comminuted fracture of ankle	Leg	.....	Died	March 27, 1864
125	" 22	Jos. Elliott	30	" " " "	Leg	.....	"	Feb. 28, 1864
126	" 23	Francis Markey	13	Concussion of brain, comp. fract. of foot	Foot (Pirogoff)	.....	Cured	July 14, 1864
127	March 15	David Kerr	48	Crushed forearm	Arm	Immediate	"	April 23, 1864
128	" 29	William Worrell	32	" "	Leg	"	Died	April 30, 1864
129	April 11	Bernard Mooney	28	Abscess of leg, necrosis	Thigh	.....	Cured	Aug. 4, 1864
130	" 19	George Geiger	6	Compound comminuted fracture of femur	Thigh, middle	Immediate	"	June 9, 1864
131	" 20	Thomas Saunders[1]	6	do do do do	Hip-joint	"	Died	April 21, 1864

[1] Amer. Journ. Med. Sciences, July, 1866.

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1864							
132	April 20	Benjamin Emory	81	Crushed forearm	Forearm	Immediate	Died	May 22, 1864
133	" 26	Jacob Troester	45	Lacerated hand	Hand	"	Cured	June 18, 1864
134	" 29	W. J. Reibel	13	Loss of hand	Arm	"	"	July 14, 1864
135	May 2	Fred. Cook	17	Lacerated arm	Arm	"	Died	May 26, 1864
136	" 12	Ed. Gallen	34	Crushed leg [joint	Leg, upper third	"	"	May 30, 1864
137	" 17	Eliz. Springer	13	Compound fracture and luxation of knee-	Thigh	.....	"	June 24, 1864
138	" 18	Isaac D. Leech	23	Compound fracture of arm	Arm	Immediate	"	June 10, 1864
139	" 19	Barbara Waldberger	57	Caries of tarsus	Foot (Pirogoff)	.....	"	June 24, 1864
140	" 25	Samuel Harmer	17	Leg crushed, compound comminuted fract.	Knee-joint	Immediate	Cured	Aug. 9, 1864
141	June 7	Cath. McCrossen	35	Necrosis of tibia	Leg	.....	"	July 25, 1864
142	" 9	Jos. Ervin	15	" "	Leg	.....	"	Nov. 25, 1864
143	" 11	John Mallon	49	Leg crushed, compound comminuted fract.	Knee-joint	Immediate	Died	June 12, 1864
144	" 11	" "	49	Leg crushed	Leg	"	"	June 12, 1864
145	" 17	John Gwillam	5	Compound comminuted fract. of left foot	Foot (Pirogoff,)	"	Cured	Sept. 6, 1864
146	" 17	" "	5	" " " of left leg	Leg	"	"	Sept. 6, 1864
147	" 24	Michael Shields	32	Abscess of wrist-joint (following a felon)	Forearm	.....	"	Sept. 9, 1864
148	" 25	John Boyce	9	Lacerated leg	Leg	Immediate	"	Sept. 29, 1864
149	" 29	James Scott	68	Crushed leg	Thigh	"	Died	July 9, 1864
150	July 26	James Finley	12	Lacerated wound of hand	Hand	"	Cured	Aug. 16, 1864
151	Aug. 23	Nancy Inch	44	Compound luxation of ankle	Leg	"	"	Oct. 31, 1864
152	" 23	Patrick Mulligan	12	Compound fracture of arm	Arm	"	"	Sept. 26, 1864
153	" 24	James Hagan	3	Lacerated wound of arm	Arm	"	"	Sept. 19, 1864
154	Oct. 11	W. J. Hamilton	9	Crushed feet	Foot	"	Died	Oct. 22, 1864
155	" 11	" " "	9	" "	Foot	"	"	Oct. 22, 1864
156	" 13	Michael Gormley	35	Crushed foot	Forearm, lower third	"	Cured	Nov. 14, 1864
157	" 19	William Davis	49	" "	Forearm	"	Died	Dec. 31, 1864
158	" 29	Francis King	25	Gunshot wound of hand	Forearm	"	Cured	Feb. 10, 1865
159	Nov. 29	Jos. Fox	27	Crushed leg	Leg	"	"	March 6, 1865
160	Dec. 7	James Ferguson	27	Dislocation of knee-joint	Thigh	"	"	Jan. 31, 1865
161	" 13	Bernard Kerlin	21	Compound fracture of thigh	Thigh	"	"	April 3, 1865
162	" 15	John Maley	35	Crushed leg	Leg	"	"	June 20, 1866
163	" 16	" "	35	Ulcer of stump	Knee-joint	.....	"	June 20, 1866
	1865							
164	Jan. 27	Thomas Duffy	12	Crushed foot	Leg	Immediate	"	April 24, 1865
165	Feb. 19	L. Knoop	35	Compound comminuted fracture of leg	Leg (Teale)	"	Cured	May 4, 1865

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1865							
166	Feb. 25	John R. Gathen	30	Compound comminuted fracture of leg	Leg	Immediate	Died	March 11, 1865
167	March 7	Daniel Saddler	22	Anchylosis of arm	Arm	.....	Cured	April 14, 1865
168	" 22	Richard Welsh	14	Crushed hand	Hand	Immediate	"	April 29, 1865
169	April 4	John Mullen	23	Gangrene of foot	Leg	.....	"	July 10, 1865
170	" 5	Max. Rooke	23	Compound comminuted fracture of arm	Arm	Immediate	"	June 1, 1865
171	" 17	Thomas Gorman	57	Compound fracture of leg	Leg	"	Died	April 21, 1865
172	" 18	Thomas Reichner	6	" " "	Leg	"	Cured	May 23, 1865
173	" 25	Maggie Kelly	1½	Compound fracture of tibia and fibula	Leg	"	Died	May 4, 1865
174	June 25	Samuel Danielly	33	" comminuted fracture of arm	Arm	"	Cured	Aug. 2, 1865
175	" 29	William Baird	16	" fracture of foot	Leg	"	"	Aug. 28, 1865
176	July 4	Benjamin A. Stone	27	" comminuted fracture of arm	Arm	"	"	Aug. 16, 1865
177	" 6	N. Gallagher	16	Lacerated hand (partial)	Hand	"	"	Aug. 16, 1865
178	" 6	Benjamin Hopkins	18	" "	Hand	"	"	July 21, 1865
179	" 20	John S. Carman	24	Synovitis of ankle	Leg	.....	"	Aug. 31, 1865
180	" 21	Valentine Vogel	45	Compound comminuted fracture of carpus	Forearm	Immediate	"	Sept. 14, 1865
181	" 25	Martha J. Reed[1]	28	Encephaloid disease of thigh	Hip-joint	.....	Died	July 25, 1865
182	Aug. 5	Henry Ford	12	Compound luxation of knee-joint	Thigh	Immediate	"	Aug. 26, 1865
183	" 30	Samuel Bell	39	Mortified leg (frostbite)	Leg	.....	Cured	Oct. 30, 1865
184	Sept. 16	Charles Maier	32	Crushed foot	Foot	Immediate	"	March 27, 1866
185	" 25	James McHale	35	Necrosis of humerus	Arm	.....	"	Oct. 9, 1865
186	" 29	Francis Carlin	9	Lacerated foot	Foot (Pirogoff)	.....	"	Feb. 13, 1866
187	Oct. 12	John McCollum	24	Neuralgia of stump	Leg	.....	"	Nov. 25, 1865
188	" 17	Andrew C. Swope	21	Ulcer of stump after leg amputation	Leg	.....	"	Nov. 27, 1865
189	" 19	Aug. Lively	21	Lacerated hand	Hand	Immediate	"	March 5, 1866
190	Nov. 13	W. Fesler	6	" "	Hand, partial	"	"	Dec. 22, 1865
191	" 17	John A. Ross	17	Compound dislocation of knee with fracture	Thigh	"	Died	Dec. 8, 1865
192	" 21	Ezekiel Davis	31	Wound of knee-joint (gunshot)	Thigh	"	"	Dec. 3, 1865
193	Dec. 5	Robert Reed Palmer	6	Suppuration of elbow-joint	Arm	.....	Cured	Dec. 22, 1865
194	" 7	John McGee	14	Lacerated hand (gunshot)	Forearm	Immediate	Died	Dec. 31, 1865
	1866							
195	Jan. 11	Charles Bower	23	Leg crushed	Leg	"	"	April 10, 1866
196	" 15	Charles Lynch	20	Ulcer of foot	Foot (Pirogoff)	.....	Cured	June 11, 1866
197	" 22	Ellen Burke	21	Lacerated hand	Hand	Immediate	"	March 22, 1866
198	" 23	Ed. D. Ulmer[2]	23	Necrosis of femur	Hip-joint	.....	"	March 27, 1866
199	Feb. 24	Bernard Coyle	30	Enchondroma of elbow-joint	Arm	.....	Died	March 14, 1866

[1] Am. Journ. Med. Sciences, July, 1866.

[2] Am. Journ. Med. Sciences, July, 1866.

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1866							
200	March 10	William Mullin	24	Crushed arm	Arm	Immediate	Cured	May 14, 1866
201	" 17	Hugh Wiley	31	Compound comminuted fracture of tibia and fibula	Knee-joint	"	"	May 28, 1866
202	" 19	Ed. Steward	10	Compound communited fracture of foot	Knee-joint	"	"	Nov. 5, 1866
203	April 9	Marg't McCausland	30	Encephaloid disease of leg	Knee-joint	.....	Died	May 11, 1866
204	" 9	James McGeehan[1]	48	Necrosis of femur after gunshot wound	Hip-joint	.....	"	May 3, 1866
205	" 19	Samuel Coulston	52	Compound comminuted fracture of carpus	Forearm	Immediate	Cured	May 15, 1866
206	" 28	Louis Nagel	23	" " fract. of leg (left)	Knee-joint	"	Died	May 7, 1866
207	May 5	John Marley	40	" " " of hand	Forearm	"	Cured	Aug. 2, 1866
208	" 19	William Wiley	25	" " " "	Forearm	"	"	July 25, 1866
209	" 26	A. Syd. Smith	45	Irritable stump	Arm	.....	"	June 9, 1866
210	" 26	Henry Lowe	19	Compound comminuted fracture of radius and ulna	Forearm	Immediate	Died	June 17, 1866
211	June 5	Charles Brown	25	Scrofulous disease of ankle	Leg	.....	Cured	July 30, 1866
212	" 14	Charles Callaghan	46	Compound comminuted fracture of leg	Leg	Immediate	Died	July 8, 1866
213	" 14	John McAuley	22	Necrosis of ulna	Forearm	.....	Cured	Oct. 1, 1866
214	July 19	Mich'l W. Brannon	26	Compound comminuted fracture of arm	Arm	Immediate	"	Sept. 4, 1866
215	" 25	Thomas Gorman	12	Lacerated forearm	Forearm	"	"	Sept. 10, 1866
216	Aug. 2	John Drumm	35	Compound fracture of forearm	Arm	"	Died	Aug. 8, 1866
217	" 6	Henry Sohlinger	21	Crushed arm and shoulder	Shoulder-joint and portion of scapula	"	Cured	Sept. 25, 1866
218	" 7	George W. Jacobs	28	Lacerated arm	Arm, upper third	"	Died	Aug. 18, 1866
219	" 21	Anna Maria Haynes	39	Ulcer of thigh	Thigh	.....	Cured	Oct. 15, 1866
220	" 23	James Lovell	32	Crushed tarsus	Foot	Immediate	"	Oct. 22, 1866
221	" 25	Ed. Porter	58	" leg	Leg	"	"	Sept. 12, 1866
222	" 27	Charles D. Griffith	23	Compound comminuted fract. of humerus	Arm	"	Died	Oct. 3, 1866
223	" 27	H. Pierce	48	Caries of wrist	Forearm	.....	"	Sept. 13, 1866
224	Sept. 4	George Foxhill	26	Compound comminuted fracture of arm	Arm	Immediate	Cured	Sept. 28, 1866
225	" 5	Daniel Cannon	15	Compound comminuted fracture of ulna and hand	Arm	"	"	Oct. 22, 1866
226	" 12	Lewis Ashton	29	Compound comminuted fracture of arm and forearm	Arm	"	Died	Sept. 25, 1866
227	" 14	James Taylor	19	Deformity of hand	Forearm	.....	Cured	Oct. 15, 1866

[1] Am. Journ. Med. Sciences, July, 1866.

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1866							
228	Sept. 29	J. A. Woodside	23	Crushed foot	Leg	Immediate	Died	Oct. 24, 1866
229	Oct. 23	John Roddy	18	Lacerated forearm	Forearm	"	Cured	Nov. 26, 1867
230	" 26	John Wearne	22	Crushed forearm	Arm	.....	Died	Nov. 19, 1866
231	Nov. 7	F. McKeon[1]	51	Axillary aneurism, subclavian ligated	Shoulder-joint	.....	Cured	March 9, 1867
232	" 10	Thomas Cascaden	63	Compound fracture of forearm	Arm	Immediate	"	Nov. 29, 1866
233	" 15	William Alcorn	45	Compound comminuted fracture of arm	Arm	"	Died	Dec. 3, 1866
234	" 21	John Maguire	14	" fracture of leg	Leg	"	Cured	Jan. 9, 1867
235	" 24	William Keefe	32	Gunshot wound of hand	Forearm	"	"	Dec. 10, 1866
236	Dec. 3	William Watkins	19	Lacerated hand	Hand	"	"	Feb. 1, 1867
	1867							
237	Jan. 19	Hugh Sweeney	24	Compound comminuted fracture of leg	Leg	"	"	
238	" "	" "	24	Ulcer of stump	Leg	.....	"	Aug. 27, 1867
239	April 1	Dennis Gallagher	22	Compound fracture of ankle	Foot (Pirogoff)	Immediate	"	July 10, 1867
240	" 26	A. L. Cloud	5	" " of leg	Leg	"	"	June 6, 1867
241	" 26	James Dunn	22	" " of leg	Knee-joint	"	Died	July 1, 1867
242	" 26	D. T. Banks	16	Gangrene following frostbite	Leg	.....	Cured	Aug. 14, 1867
243	"	" "	16	" " "	Leg	.....	"	Aug. 14, 1867
244	May 17	John Welte	24	Crushed arm	Arm	Immediate	"	July 6, 1867
245	" 24	H. A. Denuth	7	Lacerated hand	Forearm	"	"	June 20, 1867
246	June 19	John Dady	26	Compound fracture of leg	Leg	"	Died	June 30, 1867
247	" 19	William Walters	20	" " "	Leg	"	Cured	Oct. 6, 1867
248	" 27	W. C. Daily	24	" " "	Leg	"	Died	July 1, 1867
249	July 6	P. Fenney	59	" " "	Leg	"	"	July 21, 1867
250	" 12	Henry Potts	10	" dislocation of ankle	Leg	"	Cured	Oct. 10, 1867
251	" 13	Peter Young	12	" fracture of femur	Thigh	"	"	Sept. 14, 1867
252	Aug. 16	John E. Evans	34	" dislocation of ankle	Leg	"	Died	Sept. 14, 1867
253	" 24	Charles Wilkins	23	Crushed knee-joint	Thigh	"	"	Aug. 24, 1867
254	Sept. 12	H. Stark	14	" forearm	Forearm	"	Cured	Oct. 11, 1867
255	" 23	William H. Buck	42	" leg	Leg	"	"	Dec. 30, 1867
256	Oct. 7	Samuel Bronsen	12	Extensive ulcer of arm (from burns)	Shoulder-joint	.....	"	Jan. 6, 1867
257	" 26	Th. Mulligan	22	Compound fracture of leg	Knee-joint	Immediate	"	Nov. 23, 1868
258	Nov. 26	Richard Jeffries	38	" " of hand	Forearm	"	"	Dec. 12, 1867
259	" 28	Thomas Heckler	27	" " "	Forearm	"	"	Dec. 12, 1867

[1] Am. Journ. Med. Sciences, July, 1867.

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1868							
260	Feb. 27	E. M. Kerr	50	Crushed thigh	Thigh	Immediate	Cured	April 20, 1868
261	April 2	Daniel Boyle	21	" foot and ankle	Leg	"	"	April 6, 1869
262	" 29	Evan Thomas	8	" foot	Foot (Pirogoff)	"	"	Aug. 5, 1868
263	May 2	Charles Ross	19	Gangrene following frost-bite	Leg	.....	Died	Nov. 28, 1868
264	" 2	" "		" " "	Leg	.....	"	Nov. 26, 1868
265	" 16	W. O. Wiggins	23	Crushed arm	Arm	Immediate	Cured	June 1, 1868
266	June 4	James McFadden	33	Necrosed ankle	Leg	.....	"	Oct. 19, 1868
267	" 17	John Hollywood	30	Crushed foot and ankle	Leg	Immediate	"	Aug. 25, 1868
268	" 26	H. Baumgarten	9	" leg	Knee-joint	"	"	Oct. 5, 1868
269	July 3	Gustav Forber	20	" foot	Leg	"	"	Oct. 25, 1868
270	Aug. 6	H. Hirst	26	" arm	Arm	"	"	Aug. 27, 1868
271	" 6	Patrick Keenan	38	Compound fracture of leg	Leg	"	"	Nov. 4, 1868
272	" 12	George Brinkley	30	Crushed tarsus	Leg	"	Died	Aug. 31, 1868
273	" 26	John Boyle	24	Encephaloid of leg	Knee-joint	.....	Cured	Dec. 9, 1868
274	Sept. 10	W. Steward	13	Crushed leg and knee	Thigh	Immediate	"	Oct. 23, 1868
275	" 12	H. B. Neunam	25	Gangrene (crushed hand)	Forearm	.....	"	Sept. 24, 1868
276	" 21	William Doran	37	Compound comminuted fracture of arm	Shoulder-joint	Immediate	Died	Oct. 2, 1868
277	Oct. 9	James Elliott	23	Exostosis on femur	Thigh	.....	Cured	Jan. 29, 1869
278	" 9	John Hairland	70	Crushed leg	Knee-joint	Immediate	Died	Oct. 19, 1868
279	" 13	Robert Timbers	30	" hand	Forearm	"	Cured	Oct. 26, 1868
280	" 16	James Shields	49	Necrosis of femur	Thigh	.....	Died	Nov. 16, 1868
281	Nov. 4	John Hollywood	30	Osteomyelitis following compound fracture	Knee-joint	.....	Cured	Feb. 8, 1869
282	" 18	Sarah McDevitt	13	Lacerated hand	Wrist-joint	Immediate	"	Dec. 11, 1868
283	Dec. 5	William McNeal	32	Crushed leg	Knee-joint	.....	Died	Jan. 22, 1869
284	" 24	H. Reynard	65	" forearm	Arm	Immediate	"	Jan. 31, 1869
	1869							
285	Jan. 6	Walter Brough	39	Irritable stump	Arm	.....	Cured	Feb. 15, 1869
286	Jan. 11	Ellen Murray	14	Lacerated hand	Hand	Immediate	"	Feb. 20, 1869
287	Feb. 12	Dominick Wunsch	24	Compound comminuted fracture of arm	Forearm	"	"	March 16, 1869
288	" 19	Israel Fisler	26	Necrosis of carpus	Forearm	.....	"	July 9, 1869
289	" 26	John Coyle	15	Crushed arm	Shoulder-joint	.....	"	May 17, 1869
290	" 27	Thomas W. Davis	19	" hand	Hand	Immediate	"	March 13, 1869
291	March 8	Fred. Arnold	26	Lacerated hand	Forearm	"	"	May 10, 1869
292	April 1	Christ. Bott.	42	Compound fracture of foot	Foot (Syme)	"	"	June 21, 1869

No.	Admission.	Name.	Age	Disease or injury.	Part amputated.	Immediate or otherwise.	Result.	Period of discharge or death.
	1869							
293	April 5	Abigail Bundy	56	Ulcer of the leg	Leg	.....	Died	May 26, 1869
294	May 8	Th. Davis	19	Ulcer of stump	Forearm	.....	Cured	May 17, 1869
295	" 19	George W. Sitley	19	Crushed leg	Knee-joint	Immediate	Died	May 27, 1869
296	" 20	Arch. Glanding	28	Crushed foot	Foot (Chopart)	"	Cured	July 29, 1869
297	June 3	Ed. Morrow	22	Encephaloid tibia	Thigh	.....	"	Jan. 20, 1870
298	" 13	Th. Riley	45	Crushed foot	Foot (Lisfranc)	Immediate	Died	June 19, 1869
299	" 14	John McGinnis	50	" leg	Leg (Teale)	"	"	June 29, 1869
300	" 21	M. Moore	32	Lacerated wound of hand	Forearm	"	Cured	July 21, 1869
301	July 3	J. P. Deputy	38	Compound comminuted fracture of leg	Knee-joint (after transfusion)	.....	Died	July 19, 1869
302	" 5	David Gibson	38	" forearm	Forearm (Teale)	Immediate	Cured	Aug. 14, 1869
303	" 13	John White	9	" leg	Knee-joint	"	"	Nov. 3, 1869
304	Aug. 3	John Boyce	12	" hand	Elbow-joint	"	"	Sept. 14, 1869
305	" 5	George Connelly	8	Compound comminuted fracture of leg	Leg	"	"	Dec. 20, 1869
306	" 11	James Johnson	10	" " " of leg	Leg	"	Died	Sept. 18, 1869
307	" 14	John Collins	8	" " " of foot	Leg	"	Cured	Sept. 9, 1869
308	" 16	Philip McMann	12	" " " of ankle	Leg	"	"	Nov. 19, 1869
309	" 18	Joseph McAdams	12	" " " of foot	Foot (Pirogoff)	"	"	Nov. 6, 1869
310	" 22	M. Craig	24	Compound luxation at knee-joint, rupture popliteal artery, followed by tetanus	Knee-joint	.....	"	Nov. 16, 1869
311	Sept. 1	I. F. R. Smith	29	Crushed foot	Foot (Hey)	Immediate	Died	April 18, 1869
312	" 13	H. Kelley	13	" "	Foot (Pirogoff)	"	Cured	Dec. 31, 1869
313	" 21	W. J. Mitchell	15	Compound comminuted fracture of leg	Knee-joint	"	"	Nov. 20, 1869
314	" 23	Mich. Trainer	50	" " " of ankle	Leg	"	"	Dec. 28, 1869
315	" 24	Charles Femple	9	Crushed hand	Elbow-joint	"	"	Sept. 25, 1869
316	Oct. 15	James Mealy	30	" arm	Arm		"	Nov. 4, 1869
317	" 18	W. W. Snyder	22	" hand	Forearm (Teale)	"	By request	Oct. 28, 1869
318	" 27	Thomas Davis	30	Fracture of tarsus	Foot	"	Cured	Jan. 27, 1870
319	Nov. 19	Sarah A. Wilson	34	Necrosed ankle	Leg	.....	"	March 29, 1870
320	Dec. 29	Charles Lounsberry	34	Chronic synovitis	Thigh	.....	Died	Jan. 15, 1870
321	" 30	Samuel Wiley	21	Popliteal tumour, fibroid	Thigh	.....	Cured	March 24, 1870

From January 1, 1860, to January 1, 1870, 321 major amputations were performed at the Pennsylvania Hospital upon 311 patients.

Of this number 227 were cured, and 83 died, and 1 removed.

Of	29	thigh	amputations	17	were cured, and	12	died.
"	5	hip-joint	"	2	" "	3	"
"	22	knee-joint	"	12	" "	10	"
"	102	leg	"	70	" "	32	"
"	30	foot and ankle	"	22	" "	8	"
"	10	shoulder-joint	"	7	" "	3	"
"	50	arm	"	34	" "	16	"
"	2	elbow-joint	"	2	" "		
"	48	forearm	"	42	" "	5	"

1 removed by request.

" 23 wrist and partial of hand amputations 23 were cured.

Of the 321 amputations 239 were primary; of these 176 were cured, 63 died; 22 were secondary operations, of these 11 were cured, and 11 died; 60 were amputations for chronic diseases, of these 51 were cured, and 9 died.

61 amputations were done at the joints; of these 44 were cured, and 17 died.

134 were amputations of the upper extremities; of these 111 were cured, and 23 died.

187 were amputations of the lower extremities; of these 124 were cured, and 63 died.

114 patients were under 20 years of age; of these 98 were cured, and 16 died.

84	patients	were	between	20	and	30;	of	these	63	were	cured, and	21 died.
65	"	"	"	30	"	40;	"	"	45	"	"	20 "
25	"	"	"	40	"	50;	"	"	16	"	"	9 "
23	"	"	above	50	years	of age;			7	"	"	16 "

Adding these results to the statistics of amputations performed at the hospital during the previous thirty years, published by Dr. Norris (and to whom I am indebted for notes of several of the years), we find that in 749 amputations, upon 735 patients, performed during the forty years from 1830 to 1870, 548 were cured, and 186 died, and 1 removed.

500 were primary operations, performed during the first twenty-four hours after receipt of the accident, of which 117 died; 105 were secondary, of which 42 died; 144 were for diseases of a chronic character, of which 27 died.

232 of the patients were under 20 years of age, of whom 206 were cured, and 26 died; 217 were between 20 and 30, of whom 164 were cured, and 53 died; 152 were between 30 and 40, of whom 105 were cured, and 47 died; 87 were between 40 and 50, of whom 56 were cured,

and 31 died; 44 were upwards of 50, of whom 23 were cured, and 21 died.

Ether has been almost invariably used as the anæsthetic, and no death has, I believe, ever occurred in the hospital from its use; occasionally ether has been combined with chloroform, one sudden death (Case 165), however, occurred with the use of this mixture, during the removal of a fragment of necrosed bone following a leg amputation; the nitrous oxide gas I have used in very many minor operations, and in eight amputations of limbs, and have found it satisfactory when the operation was not prolonged.

ART. II.—*On the "Synclitism" of the Fœtal Head in Natural Labour.* By HUGH L. HODGE, M. D., Emeritus Professor of Obstetrics and Diseases of Women and Children in the University of Pennsylvania. (With two wood-cuts.)

THE number of the *Edinburgh Medical Journal* for June last contains some critical remarks by Dr. J. Matthews Duncan, on what M. Kueneke terms the synclitic movement of the fœtal head during its descent through the cavity of the pelvis and vagina, in natural labour. Not having seen M. Kueneke's work, my only knowledge of his views of the mechanism of labour is derived from Dr. Duncan's paper, and I am, therefore, unable to express any opinion as to how far these views may be consistent with the idea of the synclitic movement of the head, or to what extent he is amenable to criticism.

The whole subject, however, is most interesting and important, and its practical value can hardly be estimated. This circumstance, with a sincere desire of having this subject fully examined, induces me to offer to the consideration of the profession my views in regard to it.

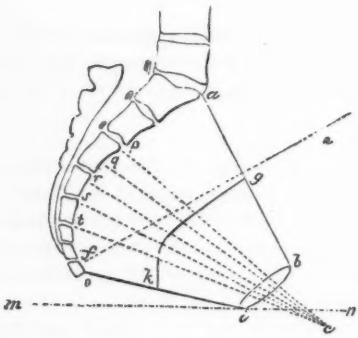
In all such scientific discussions it is very difficult to express our ideas with so much precision as to be clearly understood. Hence differences of opinion are often more apparent than real, a little explanation often resolving the difficulty. Perhaps, therefore, the theory of M. Kueneke may be reconcilable to correct views upon the mechanism of labour.

Synclitism, or parallelism of the plane of the child's head, in cases of natural presentation, to the planes of the pelvis and of the vagina, is one of my favourite doctrines, and has been taught by me with more or less fulness and precision, since the year 1832. My confidence in its truth has been continually strengthened by careful observation, and the ideas I entertain in regard to it are detailed at length, and to a considerable extent illustrated, in my work on the *Principles and Practice of Obstetrics.*

I know, however, that it would be impossible for Dr. Duncan and myself to agree upon this point, unless, what seems to be equally impossible, we could come to some prior agreement as to the axis and planes of the pelvis and vagina, and as to the mode in which the head presents and moves through the obstetric canal.

First. As to the planes of the pelvis. There can be no doubt that the planes through which the child's head descends till the top of the head reaches the floor of the pelvis, are all parallel to each other as low down as the top of the arch of the pubis, and of course at right angles to the axis of the superior strait, or brim; but below this it is universally agreed that the planes are oblique; as to the degree of obliquity authors differ.

Fig. 1.

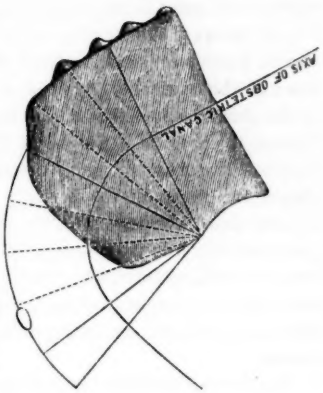


The most usual representation is given by lines drawn from various points on the sacrum and coccyx, below the third sacral vertebra, through the symphysis pubis, converging to a point exterior to the pelvis (see Fig. 1). Certainly the head does not pass perpendicular to such planes. If, however, from the same points in the posterior part of the pelvis, the lines should converge to the subpubic ligament, or top of the arch of the pubis, they would represent planes of the pelvis through which the child descends, I believe, perpendicularly, during the latter part of labour. Lines similarly converging to the pubis, drawn from the posterior wall of the distended vagina even to the frænum vaginæ, would represent the successive planes of this canal, through which the head passes synclitically until the parietal protuberances pass the vulva. My reason for thus describing these planes is that the child's head revolves under the arch of the pubis at the termination of labour; its sub-occipital or cervical region being applied to the top of the arch of the pubis. In other words, the cervico-bregmatic diameter of the child's head may be regarded as a radius describing the segment of a circle, the centre of which is at the subpubic ligament.

Second. As to the obstetric axis. The direction of this is perpendicular to the plane of the superior strait or brim, and then to each successive plane of the upper part of the pelvis, to the third sacral vertebra. Then it varies so as to correspond with the perpendicular of each plane through which the head passes. As these inferior planes represent radii of

a circle, the obstetric axis will here, of course, be represented by the circumference of a smaller circle, passing through the centre of each plane to that of the distended orifice of the vagina. The first part of the axis, therefore, is straight; being coincident with that of the brim; the lower part is the segment of a circle; the whole representing the line which the head follows during the progress of descent and delivery (see Fig. 2.)

Fig. 2.



As to the "curve of Carus," which has been often quoted with approbation by many high authorities in this country and Europe, I think it must be admitted to be erroneous. He describes a circle with a radius of two and a quarter inches, from the middle of the posterior margin of the symphysis pubis. This would indicate that the child's head describes a segment of a regular circle from the brim to the outlet, and is altogether inconsistent with the fact that the child descends directly in the axis of the brim till the sinciput reaches the floor of the pelvis, and, moreover, it would not be at the centre of the plane of the inferior outlet. It would approach too near the pubis.

Third. The lateral inclined planes of the pelvis, have not been brought into notice either by Dr. Duncan, or by the gentlemen whom he quotes. These planes exert a most important influence upon the progress of the head, especially as regards rotation. They are, I believe, four in number, two anterior and two posterior. Many authors ignore these planes, and few describe them with any degree of minuteness. In my work I have gone into details upon the subject, and endeavoured to show that the extremities of the spines of the ischia, indicate the boundaries between the anterior and posterior inclined planes, and also that these planes are greatly prolonged by the distension of the perineal tissues, to the middle line of the perineum. Rotation, therefore, is partially affected by the occiput pressing against the side of the pelvis and then against the levator ani muscle, covered by its fascia and other tissues, as it descends towards the rectum. I do not perceive how all the movements of descent in the oblique positions of the head can be explained without taking cognizance of these inclined surfaces and their influences upon the movements of the fœtal head.

Fourth. As regards the word "vertex," obstetricians ought certainly to come to some understanding, if anything like precision is to be expected

as to the mechanism of labour. Nægelè virtually includes the whole upper part of the cranium in the idea of a vertical presentation. Others would restrict it to the central portion of the sagittal suture, and others again would refer it to the occipital region of the head. The true meaning of the word "vertex" is the apex or top of the head. Hence, if a person stood erect, with the head in a horizontal direction, the real top or apex of the head would be about the middle of the sagittal suture. But if the chin be approximated to the breast, the head being in a state of flexion, the apex will then be at the posterior extremity of the sagittal suture. Now, as the child descends in natural labour, with the head flexed, the region of the posterior fontanel, or "crown of the head," is usually called the vertex. This region may be described as a circle, the centre of which is the posterior termination of the sagittal suture, and its radius extending from this point to the occipital protuberance. This circle will extend as far forward as the middle of the sagittal suture, and constitutes, I believe, the real presenting part of the head, in favourable labours.

The word "Sinciput" is still more indefinitely employed. It may be considered as representing the region of the anterior fontanel.

Fifth. As to the presenting part, not "point," of the child's head, which has elicited so many definitions and given rise to so much discussion, and, I may add, to many errors, in the study of the mechanism of labour, Dr. Duncan's definition and my own are very similar. He defines it as "that point on the surface of the child's head through which the axis of the developed pelvic canal passes." My definition is, "that portion of the fœtal ellipse which is recognized toward the *centre* of the canal of the pelvis and vagina." This portion, in cases of favourable labour, is the vertex; not merely a point in the sagittal suture, but any point between this and the occipital protuberance, according to the degree of flexion or extension of the child's head as it passes through the various planes of the obstetric canal.

I cannot help, therefore, agreeing with M. Kueneke, that this portion of the child's head, or vertex, presents towards the centre of the canal from the beginning to the end of descent, and, of course, differ from Dr. D. and most others, in transferring this portion from the line of the sagittal suture to the anterior parietal bone.

All these definitions involve many points of great importance, in which again Dr. D. and I appear to differ. The vertex, according to my views, cannot present, unless the head be in a state of flexion, so that while the vertex is the most dependent portion, the chin, at the breast of the child, is the most elevated point of the head. Hence the occipito-mental diameter, and not the vertical, as Dr. D. mentions, is parallel to the axis of the brim at the commencement of descent. Hence, also, the cervico-bregmatic circumference is parallel to the plane of the superior

strait, and not the occipito-frontal circumference, which would be the case if the vertical diameter of the head was coincident with that of the brim.

This occipito-bregmatic circumference is represented by a line drawn over the base of the occiput, the parietal protuberances, and the anterior extremity of the sagittal suture, and may be regarded, practically, as a *circle;* its two important diameters being the transverse or bi-parietal and the perpendicular, so-called, or cervico-bregmatic diameter. Hence a section of the head, through these points, may be called the plane of this circumference, and it is this plane which, in my judgment, presents parallel to all the planes of the pelvis and vagina, from the superior strait or brim, until the delivery at the vulva. The axis of this cervico-bregmatic plane is the occipito-mental diameter of the head, which diameter, therefore, is coincident with the axis of the obstetric canal, as above defined; that is, coincident with the axis of the brim, until the top of the head reaches the floor of the pelvis, and then with the axis of each of the successive oblique planes of the lower part of the pelvis and of the distended vaginal canal to its extreme orifice.

These views, which I have taught during the whole of my professorial course in the University of Pennsylvania, are, I suppose, in unison with what M. Kueneke terms the "synclitic" movement of the child's head in natural labour, although they may be inconsistent with some of his statements and with his ideas of the mechanism of labour, as Dr. Duncan has endeavoured to show. I did not originate these views, although I may have presented them with more precision and detail than my predecessors—they belong to the French school of obstetrics. Velpeau speaks of the parallelism of the head at the inferior strait in opposition to the views of the Heidelberg professor, M. Nægelè, which have been so generally adopted in modern times, especially in Great Britian. Cazeaux, one of their latest writers, although perfectly acquainted with Nægelè's theory upon this point, also insists upon this parallelism of the head. In this country, my predecessor in the obstetric chair, Dr. Wm. P. Dewees, who was familiarly called the "Baudelocque of America," taught the same doctrine more than fifty years ago, and by him it has been transmitted to the thousands of students of the University, and to the physicians who have read his invaluable writings.

Perhaps it will not be a vain repetition if I should endeavour to illustrate my views of the mechanism of labour in the occipito-anterior positions of the vertex, by tracing the descent of the child's head through the os uteri and the obstetric canal in a "given" position of a vertex presentation, in a primiparous woman.

I will simply premise that the child's head may be regarded as having passed *through* a plane when its parietal protuberances have passed, as these are the most prominent points upon its lateral surfaces. The child's head may be said to be *in* a plane when these protuberances are opposed

to any part of the circumference of such plane. It has not entered a plane when the parietal protuberances are still above its level, however much of the head may project through the plane. All this is exemplified to the touch as well as to the eye during the last act of delivery. The occiput may project for some time at the vulva before this orifice is sufficiently distended to admit the whole cervico-bregmatic circumference; but as soon as the dilatation is adequate the parietal protuberances pass the lateral margins of the orifice, and delivery is virtually accomplished.

For our illustration, as presenting the most simple view of the mechanism of labour, we still take, not an oblique position of the head, which has some complications, but a direct one, namely, the "occipito-pubic position" of the "vertex presentation," the third of Baudelocque, but which, as we think, has been unnecessarily thrown out of view by M. Nægelè.

By the time the os uteri is nearly or quite dilated, in a primiparous patient, the bag of waters usually ruptures, and the whole force of the contractions of the uterus are immediately directed upon the body of the child, which is therefore compressed into a comparatively small space, the limbs towards the abdomen, while the imperfect flexion of the head becomes gradually increased. If the resistance of the os uteri be considerable, this flexion becomes more complete, so that the occipital protuberance will be observed towards the pubis, the lambdoidal sutures converging on either side towards the sagittal suture. In a longer or shorter time the anterior margin of the os uteri slips over the protuberance of the occiput and retracts over the parietal protuberances to the face or neck of the child. The head is now left engaged *in* the superior strait, with the base of the occiput towards the top of the pubis, the parietal protuberances opposed to the sides of the brim, while the anterior fontanel will, with more or less precision, be opposite the promontory of the sacrum. Here there will probably be some delay, as the head is attempting to enter through the short or conjugate diameter of the brim, but in proportion to such delay will be necessary the increase of flexion, for the whole bearing-down force of the mother is, as Dr. Duncan well represents it, directed chiefly upon the short arm of the lever of the head, through the medium of the spine of the child. The os occipitis, therefore, descends, while the os frontis is resisted by impinging against the promontory of the sacrum. Hence flexion is perfected; the posterior part of the sagittal suture, or vertex, will be found at the centre of the pelvis, the base of the occiput to the pubis, and the anterior fontanel, or anterior extremity of the sagittal suture, at the sacrum. Hence the cervico-bregmatic diameter of the head is parallel to the sacro-pubic diameter of the superior strait, while the bi-parietal, or transverse diameter of the head, is parallel to the bis-iliac or transverse of the brim, and the occipito-mental is coincident with the axis of the superior strait. Hence the plane of the occipito-bregmatic circumference is parallel to the plain of the superior strait. This is synclitism.

I can hardly suppose that the statement thus given will meet with any objection, inasmuch as if the head be not in a state of flexion, as I maintain, the protuberance of the occiput will be at the pubis, and the anterior portion of the os frontis, or forehead, will be at the promontory of the sacrum, in which case the head will be arrested, because the occipito-frontal diameter will be parallel with the short or conjugate diameter of the brim. Then the sagittal suture would run nearly in a direct line from the anterior to the posterior part of the pelvis, and the two fontanels would be at the same level. When, however, flexion has occurred, the posterior fontanel will be found lower down and nearer the centre of the strait, and the anterior higher up, and nearer the promontory, while the sagittal suture will be found to run not only backward, but obliquely upward.

The process of labour continuing, the child's head descends precisely in the same direction till the sinciput reaches the floor of the pelvis, and the occiput has glided along the posterior or inner surface of the body of the pubis. The whole head descending thus far through a cylinder, as M. Schroeder would express it, the occipito-mental diameter coincident with that of the axis of the brim, and the cervico-bregmatic plane parallel to each plane of such cylinder, till it reaches the level of the third sacral vertebra behind, and the top of the arch of the pubis in front. By the time this is accomplished the os frontis has descended below the promontory of the sacrum, and the occiput appears under the arch of the pubis, when, as Dr. Dewees would express it, the chin begins to leave the breast, or, more accurately, the process of extension commences. Now the further descent of the head is resisted by the sinciput striking against the floor of the pelvis, and anteriorly, by the neck of the child pressing against the pubis. The driving force continues to operate and chiefly upon the occiput through the medium of the spine. This portion of the head then descends towards the perineum as far as practicable, but the resistance here being also great, the head passes off diagonally between these opposing forces, and describes a circular motion on the base of the occiput under the arch of the pubis, where it is comparatively at rest. Hence the process of extension is continually increasing until the occiput has somewhat dilated the vulva and the parietal protuberances will be perceived on either side at the tubers of the ischia, while through the rectum the anterior fontanel can be detected at the perineum or coccyx. The head, now partially extended, presents at the inferior strait, with the same diameters and the same planes which were recognized at the brim, and the occipito-mental diameter, which was coincident with the axis of the brim, is now in unison with that of the inferior strait; the chin pointing towards the concavity of the sacrum, while the vertex, as represented by the posterior fontanel, is at the centre, not of the vulva, but of the inferior strait. The plane, therefore, of the occipito-bregmatic circumference is parallel to the plane of the inferior strait.

Now, as the head moved in this regular manner through the upper or cylindrical portion of the pelvis, presenting its equatorial plane, as Dr. Barnes might term it, parallel to the planes of the cylinder, till the sinciput reached the floor of the pelvis, so, during the gradual process of extension, through the curved portion of the canal, the same cervico-bregmatic plane became parallel to each successive oblique plane of the curved portion of the canal, to the inferior strait. The parietal protuberances will always be found at the sides of the pelvis, and as the occiput gradually advances under the arch of the pubis, the posterior fontanel is found towards the centre of each plane till it reaches the outlet of the pelvis.

The bearing-down efforts of the mother now force the child more and more against the perineum, the process of extension continues, till eventually the occiput gets in front of the pubis, the parietal protuberances on either side of the vulva, and the posterior fontanel is observed clearing the perineum at the centre of the dilated orifice of the vagina, so that again we have the cervico-bregmatic plane engaged, but now parallel to the plane of the orifice of the vagina. Hence the head passes through the canal of the vagina in this circular manner, presenting its equatorial plane parallel to the various oblique planes of the vagina.

If this representation be correct, the fœtal head, "at term," notwithstanding its apparent irregularity of form, traverses the obstetric canal with as much readiness and precision, continually presenting the same diameters to the walls of the canal, and the same diameter of the head, to the axis of the obstetric canal, as if it were a perfect sphere of about three and a half inches in diameter.

This seems to me a correct representation of the synclitic movement of the child's head—in other words, the parallelism of the plane of the great occipital extremity—in relation to those of the pelvis and vagina.

If we now consider the First position of the vertex, the left occipito-anterior, the process is rather more complicated, from two causes. The first is that the head is no longer direct, but oblique, at the superior strait, and subsequently in the cavity of the pelvis; and the second, resulting necessarily from the first peculiarity, is the necessity of a rotatory movement of the head, that the occiput may pass under the pubis.

If the propositions already assumed be granted, these difficulties immediately vanish. For if the head passes through the os uteri in a state of flexion, presenting its cervico-bregmatic circumference to the circle of the os uteri and that of the superior strait, it may practically be regarded as a sphere or ball to be driven through the planes of the canal. Hence it would be a matter of no moment whether it did or did not rotate upon its axis, for diameters of the same length would always be coincident with those of the obstetric passages. Parallelism of planes, therefore, would ensue.

To be, however, more precise. In this first position, as in the former,

the resistance of the os uteri, or the margin of the superior strait, against the anterior parts of the head of the child, while the uterine forces are driving down the occiput through the medium of the spine, necessitates flexion of the head to a greater or less degree. Hence, after the os uteri has retreated, the head will be found oblique, not only because it extends diagonally from the left ramus of the pubis to the right sacro-iliac symphysis, but also because the occiput is lower in the pelvis than the forehead and the face. Hence the posterior fontanel will be found not on the same level with, but lower than the anterior fontanel; and the sagittal suture, therefore, not running directly across the pelvis, but obliquely upward as well as backward.

The parietal protuberances of course present obliquely to the right and left sides of the pelvis, while the base of the occiput will be towards the left anterior part of the pelvis, and the anterior fontanel towards the right sacro-iliac symphysis. Hence we have the cervico-bregmatic diameter parallel to one of the oblique, and the bi-parietal to the other oblique diameter of the brim, while the posterior extremity of the sagittal suture will be found towards the centre of the pelvis, and the chin, being directly opposed to it, will be the most elevated part of the head.

I can hardly expect that all this will be conceded by Dr. Duncan, as he, in common with almost all British authorities, speaks of the "vertical" diameter as being coincident with the axis of the uterus and of the brim, and of the two fontanels as being nearly upon a level, all of which would involve the idea that the occipito-frontal diameter is parallel with the oblique diameter of the brim, and, of course, that there is a synclitism of the plane of the brim with that of the occipito-frontal circumference, and not with that of the cervico-bregmatic circumference, as I believe. The truth, of course, of this question can only be ascertained by careful observation. That the head will be found in the position Dr. D. describes, in many cases of labour, there can be no doubt, owing to the greater length of the oblique diameter of the pelvis, the relaxation of the os uteri, or the diminutive size of the head. In exact proportion, however, to the resistances of the os uteri or of the bones of the pelvis, will be the greater flexion of the head, and, of course, the accuracy with which its cervico-bregmatic circumference becomes parallel with the plane of the superior strait, and hence the occipito-mental diameter coincident with the axis of the brim.

The head descending into the cavity of the pelvis to its floor, presents virtually the same diameters, and soon the process of extension commences. This is often slow, inasmuch as another process, that of rotation, must precede and accompany it. It is not necessary to inquire at this time how this rotation is effected, as all acknowledge its necessity as well as its existence. As already intimated, I believe it is dependent upon the inclined planes of the pelvis, and their prolongation by the soft tissues to the

middle line of the perineum. The question arises—and here, I am sorry to say, Dr. D. and I again differ—On what diameter does the head rotate? Not on the vertical, as he declares, as this would indicate that the head was situated directly across the pelvis, that is, the occipital protuberance towards the left foramen ovale and the forehead opposite the sacro-ischiatic foramen, and the anterior fontanel opposed to the coccyx. I think it will be found that the posterior fontanel is nearer the centre of the floor of the pelvis, and the anterior fontanel, and not the forehead, opposed to the sacro-ischiatic foramen. Hence the occipito-mental diameter constitutes the axis upon which the head rotates. If this be true, it seems to me to necessitate the parallelism of the cervico-bregmatic plane with the planes of the lower part of the pelvis during the process of rotation. This rotation is never complete until the head is fairly engaged in the inferior strait. By this time the process of extension, which had been retarded by the impingement of the occiput upon the side of the pelvis, advances with more rapidity until the parietal protuberances are observed at the tubers of the ischia, and the base of the occiput at the sub-pubic ligament. The small or equatorial plane of the head now presents parallel to that of the inferior strait, as was noticed when speaking of the third position of the vertex. If, therefore, we adhere to Dr. Duncan's definition of presentation as "that point of the surface of the child's head through which the *axis* of the developed pelvic canal passes," I think it will be found that the posterior extremity of the sagittal suture, or the angle formed by the two parietal bones, will be found towards the centre of the canal of the pelvis. Of course it gradually advances as the occiput approaches the arch of the pubis, and then more rapidly in proportion to the degree of extension that ensues, the presenting part being always central to that particular plane through which the head is passing.

This rejects altogether the usual mode of judging as to what part presents. We cannot determine this question by the position of the caput succedaneum, for reasons Dr. D. has well detailed. Neither can the question be settled by examining what part of the child's head is felt at the orifice of the vagina, because, in the first place, the orifice of the vagina is never parallel with any plane of the pelvis, and should be regarded as situated at the *anterior* part of the cavity; and in the second place, the part of the head felt towards the orifice of the vagina is continually changing during the process of rotation, so that in many cases the anterior part of the parietal bone, its posterior part, and then the side of the occiput may be felt in succession at the opening of the vagina before the occipital protuberance fairly emerges. If, however, the finger be directed to the true vertex, this part will be found nearly stationary, during the process of rotation, except that it advances slowly along the perineum. If, therefore, the occipito-mental diameter be thus constantly coincident with the obstetric axis, and the whole posterior portion of the head be represented by the

figure of a ball, each of its diameters measuring three and a half inches, it follows, I think, that there is a necessary parallelism of this equatorial plane with the planes of the pelvis. This view is not invalidated by the fact, recorded by Nægelè, that in many instances the right parietal protuberance escapes first at the inferior strait, as this would only show that the head is small enough to be delivered before rotation is complete, but is not really inconsistent with the synclitism for which we contend. I must, however, believe that careful observation will show that such an escape of the parietal protuberance occurs in easy labours only; that when the customary resistances are present, as in first labour, the head being of normal size, each parietal protuberance finds its exit upon the same level at the tubers of the ischia, while the sagittal suture and anterior fontanel will be found in the middle line of the perineum.

Dr. Duncan's declarations that "continued synclitism is conceivable *during* and after rotation," and, moreover, "that there arises from the mechanism a direct tendency to the production of the synclitic condition there can be no doubt," gives me much pleasure. But in another place he observes, "The tendency to the synclitic movement is prevented by two causes. First, the driving force operates chiefly on the occipital portion of the head, through the spine; and, second, the greater resistance of the pelvis posteriorly, as compared with that anteriorly towards the symphysis. These prevent the synclitic movement."

How these two circumstances prevent the tendency to a synclitic movement, I am at a loss to comprehend; for, on the contrary, they seem to me to necessitate synclitism of the head by increasing the flexion of the child's head when it is high up, and its extension when low down in the pelvis or in the vagina.

Respecting the quotation given by Dr. Duncan from Dohrn, as to the "shearing" of the child's head, I do not, perhaps, comprehend his full meaning, but I must agree with Dr. Duncan in believing that the vertical shear to which he alludes does not occur at the superior strait in cases of natural labours, but I have observed it in cases where the conjugate diameter was contracted. In respect to the second or lateral shear, it includes, if I understand it, those circumstances which determine the rotation of the head in the inferior part of the pelvis, and may, as he observes, give rise to the lateral shearing of the head, as described by Dohrn. I should not, however, regard this as of any practical importance. My own belief is that the head of the child, during descent, in all the occipito-anterior positions, impinges much more firmly against the anterior portions of the cavity, and that the rotation of the head is dependent, in these cases, upon one or other, as the case may be, of the anterior inclined planes of the pelvis, as formed by the bones of the pubis and ischium, and as they are prolonged by the levatores ani muscles, &c. But these are points not now under review.

I thus have been endeavouring to maintain the synclitic movement of the child's head in cases of natural labour, as true, both theoretically and practically. I cannot insist upon its mathematical accuracy, for the ever-varying size of the child's head, and the degree of resistance it meets with from the os uteri and from the bones of the pelvis, which must influence continually its degree of flexion or extension, defy any attempts at mathematical accuracy. I would only repeat that the head passes more readily when it presents its cervico-bregmatic plane, and that the greater the resistance the more perfect will be the flexion, and the more exact will be the parallelism or synclitism of the equatorial plane of the head with the various planes of the pelvis and vagina.

If this fact be substantiated, its practical importance can hardly be estimated. This assertion needs no demonstration to any experienced accoucheur. If the great occipital extremity of the head descends, in a natural labour, in such a manner that the occipito-mental diameter always coincides with the axis of the obstetric canal, whether straight or curved, and that the cervico-bregmatic plane of the head, with its diameters of equal length, is parallel to the successive planes of the pelvis through which it passes, it results: That it is the great business of the accoucheur during the whole process of descent, to insure this parallelism by facilitating, during the first portion of the descent, the process of flexion of the head, and during the last, by facilitating its extension.

Hence, also, in all obstetric operations the same principle must regulate the hand of the practitioner. The blades of the forceps, for example, should always be applied as nearly as practicable in the direction of the occipito-mental diameter, and traction effort be made in the axis of the obstetric canal, inasmuch as then the longest diameter of the head will be coincident with the obstetric axis, and the cervico-bregmatic circumference will be parallel with the planes of the pelvis and vagina. This, as all experience demonstrates, is not only the most natural, but also the easiest mode for the transit of the head.

ART. III.—*Observations on Relapsing Fever, as it occurred in Philadelphia in the winter of* 1869 *and* 1870. By JOHN S. PARRY, M. D., one of the Attending Accoucheurs to the Philadelphia Hospital. (With two Diagrams.)

THE announcement made in the latter part of last year (Dr. Weber, *Medical Times and Gazette*, Dec. 19, 1869), that relapsing fever had again appeared in London, and was threatening to become epidemic there, could not but arouse the suspicion that it might cross the Atlantic, and

spread throughout the commercial cities of our sea-coast. That this has been fully realized, we are already painfully aware, and it now remains for those who have had opportunities for studying the disease to trace, if possible, its rise and progress here. It is this, rather than to give a complete account of its clinical history, that I propose to do.

According to Dr. Flint, Sr. (*New York Medical Journal*, March, 1870), relapsing fever appeared in New York on or about the 14th of November, 1869. Previous to that time, however, several cases had been under the care of the writer in this city. The district in which it was first met, was in the eastern portion of the town; the square between Second and Third, and Arch and Race streets. This block is divided into four nearly equal parts, by Bread Street running north from Arch to Race, and Quarry Street running east from Second to Third Street. Connected with these were several very dark, narrow, ill-ventilated alleys, all the houses of which were crowded to overflowing with a poor Irish and German population—the former predominating. At the time the fever appeared Bread and Quarry Streets were both in a deplorable condition, having received for an indefinite period much of the garbage thrown out by their careless inhabitants.

The first case that occurred was a widow aged 23 years, living in a very narrow court running back from Quarry Street west of Bread. She was one of a family of seven persons who lived in a house having three rooms, each about twelve feet long and eleven feet wide, and with very low ceilings. These were upon separate stories, the second and third being occupied as bed-rooms. In the upper of these four persons slept, the patient in question, a grown-up sister, and two brothers aged about ten and twelve respectively. The whole family appeared to be well fed, and, with a single exception, were rather more than ordinarily fleshy. From personal inspection, we know that during their illness the table was always plentifully supplied with the necessaries of life. The house was moderately clean, and the family well clothed. This woman sickened on the 8th of September, 1869, and was placed under our care on the 10th of the month. So far as we have heard it was the first case of relapsing fever which occurred in Philadelphia during the present epidemic. A short summary of the symptoms may be given to establish the identity of the disease.

Previous to September 8th, she had been perfectly well, and working in a neighbouring factory. On the morning of that day she was suddenly seized with a chill followed by a high fever, nausea, vomiting, and epigastric tenderness. When she came under our care, two days afterwards, the symptoms were well marked. Her face was flushed, skin everywhere dry and pungently hot, with an axillary temperature of 105.25° Fah. There was a heavily furred tongue, which afterwards cleaned from the centre, and later became dry and very sore; epigastric tenderness well marked, extending over into both hypochondriac regions. Spleen and liver both enlarged, vertical diameter of the former about seven inches, while the latter projected nearly two fingers' breadth below the false ribs; both were exceedingly tender upon pressure. There was complete anorexia, bowels obstinately constipated. Vomiting still continued, the ejected matters consisting of mucus and a bright green sour fluid. No tympany, nor

could we find any abdominal eruption. At this time there was no jaundice. Pulse exceedingly rapid, varying from 125 to 140 from the third to the fifth day of the disease, full and thrilling; rapidity of the pulse out of all proportion to the prostration, for though this was considerable, she still attempted to sit up. She complained much of restlessness, pains in the back and limbs, headache, which was very severe, and both frontal and occipital. There was almost complete insomnia, but delirium and stupor were entirely absent.

She continued in this condition until the evening of the fifth day of the disease, when we left her apparently worse than she had been at all, and being really alarmed about her, ready to give an unfavourable prognosis; the disease being supposed to be remittent fever, and quinia had produced no effect. Towards morning, however, she fell asleep, and awoke about four hours afterwards in a profuse perspiration; and when she was seen in the morning, her clothing and bed were literally drenched. Skin now cool, pale; pulse fallen to 70, small and weak. The prostration was great, though in a few days it grew less, and at the end of a week she was even able to sit up a little, but was so giddy that she could not walk.

On the fourteenth day she fell sick again as suddenly as before, the same symptoms following with slight jaundice in addition coming on the fifteenth day. This paroxysm continued four days, and then remitted as suddenly as before, to reappear again on the twenty-eighth day. The second relapse was followed by most profound depression, which prevented her leaving her bed until the termination of the sixth week of the disease.

The second patient, the mother of the first, fell sick on the 13th of September, having been almost constantly with her daughter after her illness began, and occupying the same bed with her at night.

The third patient came under our notice on the 16th of the same month. She was one of a small but very poor family living in a narrow court running east from Bread Street above Arch. The house was small and imperfectly ventilated, but not overcrowded. Her food had for some time been of the coarsest kind, and it may be deficient in quantity, but this she denied.

September 27th, a near neighbour of this woman was taken sick with the same symptoms. Seven days before she had visited the third patient. This family occupied a somewhat larger house than any of the others, living in two rooms only. The whole family consisting of husband, wife, and five children, occupying a common sleeping room on the second floor, which in regard to size was totally inadequate to their wants.

Two cases occurred in this house, the other being a child four years old, who slept with his mother during her illness. This family was both well clothed and well fed, and they presented no evidences whatever of want of food.

On the first of December, we were called to see another family on the west side of Bread Street above Arch. In this there were two cases. On the 25th of the same month, the first case occurred outside of this locality; a woman in Allison Place, a narrow court off Front Street above Arch. After this the area over which the disease spread, as is well known, was very wide. As early as the middle of December, we saw two well-marked examples of the disease in the western part of the city.

We have thus located the first eight cases of this disease, in the order of their occurrence. Every attempt to trace their origin has failed. The

first patient had been working in a neighbouring factory, and had not been where any one was sick. None of the operatives in the establishment had been ill. She was born in this country, though her parents were Irish. They had had no communication with any one coming from the old country.

It is equally impossible to trace the disease in the third case to contagion. There certainly was no direct communication between her and the first family, though they lived scarcely a half square apart.

Etiology.—The surroundings of these patients have been described in order to draw attention to the etiology of relapsing fever. It is generally supposed to have its origin in want of food. And the common names of "famine fever" and "hunger pest" express both the popular and professional opinion on this subject. Dr. Murchison (*Treatise on Continued Fevers*, p. 313) says it is probable that "the poison of typhus is generated by overcrowding, and destitution favours its extensive propagation; that of relapsing fever is more intimately connected with, if it is not generated by destitution, and is propagated by overcrowding." Dr. Begbie (Reynolds, *Syst. of Medicine*, vol. i. page 647), Aitken (*Pract. of Medicine*, vol. i. p. 441, Phila., 1866), and Dr. Flint, Sr. (*Theory and Practice of Medicine*), express the same view (1st edition, p. 733), and the latter reiterates it again in 1870, in the following language: "Destitution, deprivations, and especially deficient alimentation, are powerful predisposing causes." (*New York Medical Journal*, March, 1870.) Dr. Clymer, who described the first recorded cases of this disease in this country, adds his testimony to that already cited.

At the outbreak of the epidemic we shared the common view, and we were consequently much surprised to find that, with a single exception, the persons affected appeared to be well fed, and were even fat. In only one instance was want of food suspected, and in this case even it was denied. Every patient that came under our care was able to obtain a plentiful supply of milk, meat, eggs, or any ordinary article of diet that was ordered. In our experience, again, the disorder did not occur among the "vagrant and unemployed," but the heads of the afflicted families held their ordinary positions in the neighbouring stores and factories, many of which they had occupied for years. Nor is there any obvious reason why want to the extent of starvation should afflict the labouring classes in this country at the present time, for the price of labour is high, while the crops of last year were good, and in 1869 the price of breadstuffs was low. Potatoes, an article largely consumed by our Irish population, have been very plenty during the past winter and the preceding summer, nor do we know that meats were at that time more difficult to procure, whatever may have been the case during the last few months.[1]

[1] From January to November, 1868, flour of a good grade sold for $11 and $12 per barrel, and from November, 1868, to February, 1869, for $10 and $11. In

We therefore searched for another and more powerful exciting cause of this fever than starvation, and soon noticed that there was a striking similarity in the surroundings of all the patients. No matter how well fed they might be, the houses in which they lived were all overcrowded, and this is particularly true of their sleeping apartments. In every case the ceilings were low, and it was no uncommon thing to find four or five persons occupying a small room eleven by fifteen feet, and eight feet high, at night. Further, there was no means of ventilation, the only window being, in many instances, small, containing nine panes six by eight or eight by ten, only one-third of which—the lower sash—could be opened. At most there were but two of this kind. Is it any wonder that disease should spring up under such circumstances? It is only astonishing that some worse scourge has not visited them long since. The sickening odour which met us as we entered some of these rooms cannot be forgotten.

It is with diffidence that we oppose the opinion that relapsing fever is largely due to starvation, as the statement is supported by such high authorities; but we cannot help believing the conviction which is now being urged, that a much more potent cause here was overcrowding, and the notoriously small breathing space allotted to each individual in the houses of the poor.

It is with pleasure that we notice, just as this article is going to press, that Dr. Muirhead (*Edinburgh Medical Journal*, July, 1870) advances the same views, and denies the potency of starvation as the cause of this fever. In his cases he found the breathing space allotted to each individual to vary from 240 to 400 cubic feet, while we know of no house in which the disease occurred, unless it was very evident that it was due to contagion, where there was over 450 cubic feet for each in their sleeping apartments, and in the majority it was 300 feet or less. Dr. Bennett also states (*Ed. Med. Journ.*, Aug. 1870, p. 162) that he "had charge of the Fever Hospital in 1846, when relapsing fever largely prevailed, and he could say that in not one case had it been traceable to starvation."

Contagion.—That relapsing fever is contagious can hardly be doubted. It has already been stated that in several cases the nurses and patients occupied the same bed at night. This was allowed because the disease was at that time thought to be remittent fever. In no instance of this kind did the nurse escape, while other members of the same family did not so surely suffer. If the apartment occupied by persons sick with it be of good size and well ventilated, it appeared that they might be visited with impunity. Patients may be admitted to a healthy family among the better classes, or into the wards of a well-ventilated hospital, without propagating the disease. In April last a girl, æt. 12, entered the children's asylum

July, 1869, it was worth from $6 to $7, and so continued until February, 1870, when it fell to $5 and $6.

of the Philadelphia Hospital in the primary paroxysm. No attempt was made at isolation. A few weeks after her recovery two cases, a brother and sister, were admitted. In neither instance did the disease spread. The ward in which they lay was large and not crowded.

On the other hand, small breathing space and imperfect ventilation are followed by rapid spread of the fever, so that the whole family may have to be transported to a hospital in order to be nursed.

The following striking example of contagion came under our notice in the latter part of March last:—

A man left Philadelphia about February 1st, remaining for the two months in Western Pennsylvania. During his absence his health was good, and he had no known opportunity to take any disease. On returning home he spent several days with a friend in the second paroxysm of relapsing fever. He then went to his brother's, and ten days after reaching the city was seized with mild relapsing fever, and was sick five days. In about two weeks his brother's wife was taken, and had it severely. Subsequently another case occurred in the same family. During the remission this same man went to his brother-in-law's in a distant portion of the city. Here he had the relapse which lasted four days. This family consisted of six persons, four of whom were children. Only one of the six, the mother, escaped. It is worthy of note that the youngest children, who were most exposed by being with their uncle, and who were aged, respectively, four and six years, were taken first, on the eleventh and twelfth days after their relative reached the house. The older ones, who were nearly grown up, and engaged at work during the day, did not take sick until the younger ones were in the relapse, while the father remained well until all the others had recovered.

The disease may be carried by fomites. This is very forcibly illustrated by the history of the affection in a family placed in my care by my friend Dr. Edward W. Watson, during his temporary absence from the city. He has very kindly allowed me to use the statements which are about to be related:—

The family lived in a healthy neighbourhood, and were in comfortable circumstances. One of the sons was employed in a neighbouring manufactory where they procured a new hand who, it was afterward learned, had just come from the Philadelphia Hospital, where he had been ill with relapsing fever. From him Mr. M. purchased a pair of overalls and carried them home. On the 19th of April one of the sisters washed these, and she was taken ill with the fever on May 1st, making the period of incubation twelve days. At the same time this garment was handled by two other sisters, who fell sick on the 2d and 3d of May respectively.

Dr. Watson relates, and allows to be used, another equally striking example.

A woman learned through the newspapers that her husband had been picked up ill in the streets, and taken to the Philadelphia Hospital. He had not been at home for some time before. On the 21st or 22d of March, she sent a friend to the institution to learn his condition. She found him dead, it was stated from relapsing fever. She went to the dead-room and identified his body, which was not brought away for burial. She carried

his clothing to her own home and placed it in a room next to her children's bed-room, with an open door between them. Four cases of the disease afterwards occurred in the family. On April 7th a boy was taken, April 25th a girl, April 29th another girl, and on May 3d her husband. There had been no cases of the disease in the neighbourhood before that time, so far as could be ascertained. There certainly had been none in that square.

Nativity, Age, and Sex.—In not a single instance did we meet with the affection among our native population. All the sufferers, with two exceptions, were Irish, or born of Irish parents. The exceptions were Germans living in the infected districts. We met the disease in four families who were in comfortable circumstances, and in three of these it could be traced to contagion.

No age was exempt. It affects young and old alike. More females than males were attacked, in the proportion of two to one. The probable cause of this difference is to be found in the fact that men were less exposed to the causes of the disease, especially overcrowding and contagion, than women.

Origin in Philadelphia.—We feel that the information in our possession is not sufficient to warrant an opinion in regard to this matter. It is at least certain that it appeared in distant parts of the city about the same time, having broken out near the Schuylkill River early in October, 1869. We vainly endeavoured to trace some means by which it had been imported from Great Britain directly, or brought here from New York. The latter is rendered improbable from the statement of Dr. A. Clark (*Clinical Lectures on Relapsing Fever*, New York Medical Record, March, 1870), that the earliest case which was recognized in that city was admitted to the Bellevue Hospital November 6th, 1869, nearly two months after the disease came under the notice of the writer in this city.

Dr. Harris, the Sanitary Superintendent, New York, believes the fever was imported there, and did not arise, *de novo* (*Medical Record*, March 1st, 1870.)

Period of Incubation.—From what has been said under the head of contagion, this is probably from seven to fifteen days.

Symptoms.—It is not our purpose to give a detailed account of the clinical history of relapsing fever, but a brief summary of phenomena of the thirty-seven cases which have been under our care, may be important.

The invasion was almost always sudden, the patient often being able to fix the time of commencement of the disease with the utmost precision. In several cases this feature was particularly noticeable; one woman telling us that she arose in the morning perfectly well, ate her breakfast as usual, and did not think of being unwell until ten o'clock; when, during her return from market, she was suddenly seized with giddness, which was rapidly followed by intense headache, and a sharp pain in the epigastrium.

Before she could reach home, these were succeeded by a chill, accompanied with vomiting.

In adults, the chill, which is not usually very severe, was frequently the initial symptom. It was not unusual for it to be preceded by the symptoms mentioned above. In one case, the chill was repeated at the same hour on three successive days. In children under seven years, the disease was ushered in by, or at least the symptom which first attracted the attention of the mother was, profuse vomiting. In only two cases were we able to obtain the history of premonitory symptoms of more than a few hours' duration. These were nausea, loss of appetite, giddiness, headache, debility, and pain in the back and limbs, lasting for two or three days before the attack began.

This cold stage was rapidly followed by intense headache, high fever, restlessness, insomnia, pain in the back and limbs, with a very frequent pulse. The digestive system was much disturbed, with furred tongue, epigastric pain, and nausea and vomiting. These all persisted as in previous epidemics, until the fifth, seventh, or ninth day, when they remitted with surprising suddenness, to be repeated again at the end of the second week of the disease.

Studying the symptoms separately, we obtained the following result:—

Physiognomy.—During the initial chill there was nothing peculiar in the expression. After the fever set in the face was usually flushed, the colour being red or purplish. In one case, uncomplicated, the redness was distinctly circumscribed and limited to one side. Dulness of expression, or the stupid appearance common in the continued fevers, was not present at all. During the remission and after the second relapse, the face was frequently very pale, and sometimes had a puffy, velvety look, as though the skin had been much thickened and softened at the same time. This was especially noticeable during the earlier stages of the epidemic, when the sweating was more profuse and continued longer than it did later. There was but little conjunctival congestion. The point which was most striking in connection with the eyes, was the alterations of the pupils. At the commencement of the febrile stages, these were normal, or rather contracted, and they remained so until just before or immediately after the crisis, when they became widely dilated, even in a well-lighted room. This condition continued for three or four days, and then disappeared. In one case in which this was particularly noticeable, the dilatation occurred about twelve hours before the remission, and continued for seven days when the relapse supervened. The pupils then contracted, and on the seventeenth day of the disease they were noted as normal. During the night the temperature fell seven degrees, with the usual changes accompanying it, and in the morning the pupils are recorded as "very much dilated."

We are unable to make any positive statements in regard to the con-

stancy of this symptom, but after our attention was attracted by it we found it present in one-half the cases.

Skin.—The condition of the skin varied somewhat with the stages of the epidemic. It was always excessively and pungently hot during the paroxysms. Until the latter part of February last it was always very dry, and we never noticed any perspiration until the crisis came on. During the spring and summer, however, perspiration upon the face, arms, and especially the hands, was frequently noticed without diminishing the heat or affording any relief to the patients. When the temperature and pulse fell the skin became bathed in perspiration, which sometimes literally drenched the patients. We have frequently seen them with their hands drawn like a washerwoman's.

The first cases which we treated sweat much more profusely than those who were sick later in the season. After the second crisis in the first seven cases the secretion did not cease, but continued, especially at night, for two or three weeks, and was most profuse and very exhausting. The appearance of these sweats at the crises was frequently attended with a copious eruption of sudamina both after the primary and secondary paroxysm. In no case was any other eruption seen excepting in a delicate girl, who had numerous small spots of purpura appearing in the first stage of the disease, and chiefly confined to the lower extremities.

Digestive System.—In one particular some of the earlier cases differed from those usually described, and from those seen later in the epidemic. During the primary paroxysm, the tongue was covered with a white or yellowish-white fur varying in thickness but usually well marked. This coating in most cases covered the whole organ, and presented no peculiar appearance, but on the third or fourth day the tip and edges became red. During the remission it partly cleaned and in the relapse totally changed its characters. There first appeared a red smooth streak down the centre, which rapidly became dry in some cases, in others remained moist. If the former, a portion remained upon either side, covered with a simple white fur, the lines separating this from the middle portion frequently being very sharply defined. In other cases the whole tongue speedily became clean, the coating with the epithelium disappearing from the centre, leaving it of a bright red colour with enlarged papillæ, very much like the "strawberry tongue" of scarlatina. Immediately after cleaning it became fissured, the cracks traversing its short diameter with a deep central fissure running down the organ in a few cases. These were very painful, giving rise to loud complaints, and indeed in some cases it was the chief source of discomfort. When well marked the patient dreaded taking anything, even so much as a drink of water, into the mouth, on account of the intolerable smarting produced. As this appearance of the tongue was present in the first five cases of the disease seen by the writer, it was supposed to be characteristic of the malady, but subsequent observation

disproved this, and led to the conclusion that there is nothing characteristic about the appearance of the tongue in relapsing fever. As the epidemic progressed and became milder, or at least the cases coming under our care were not so severe, there was simply redness and dryness of the middle of the organ, and still later was covered with a white fur with reddish and clean tip and edges. The clear surface at the point was frequently triangular in outline, its edges sometimes being sharply marked. These characters do not always present themselves until the third or fourth day of the disease, and it is the author's belief usually do not. His attention was not specially directed to the point until comparatively recently, when, of five cases seen on the first or second day, all the tongues were furred to the tip and edges, while in four of them these parts became red on the third or fourth day. The appearances of the tongue, described as occurring in the early part of the epidemic, have now totally disappeared. In walking through the medical wards of the Philadelphia Hospital, and looking at the patients under the care of our colleagues, we do not remember to have seen a single example of it. All the patients in whom it was present had a prolonged convalescence, and after they were able to return to their work they complained of dyspeptic symptoms and pain in the stomach after taking food. In no case in which the smooth and later fissured tongue was present was the patient able to leave the bed under six weeks from the commencement of the disease, and several were confined to their rooms for some time longer. It was present in seven out of thirty-seven cases.

There was in all the cases more or less vomiting during the early part of the primary attack, and in nearly all in the relapse. It usually subsided after two or three days, except in the earlier cases. In only two instances did it become a serious symptom, and in both of these there was the smooth fissured tongue that has been described. After the stomach had been emptied the ejected matters consisted chiefly of mucus and bile, and were of a bright green colour. There was anorexia in the primary and secondary attacks, the appetite returning in the interval; however, the patients would usually drink large quantities of milk, which was partly due to the thirst of which they always complained. Only once did we meet with the voracious appetite which Dr. Murchison states is sometimes present.

The bowels were in all the cases constipated during the primary attack and the remission. The first patient had some diarrhœa during the relapse, but it occurred after the abuse of purgative medicine. It was not at all severe, and ceased spontaneously at the end of four days. In another there was some diarrhœa during the second remission and the second relapse, though the patient was taking a considerable quantity of opium at the time. The stools, so far as they were seen, contained bile, and were dark and very offensive. In no case was there any meteorism or abdomi-

nal tenderness other than that mentioned as existing over the liver and spleen, and in the epigastrium.

In four of the thirty-seven cases there was jaundice, three of which were females and one male. In two it appeared in the primary and in two in the secondary paroxysm. Of the former it occurred in one on the fourth day of the disease and the other on the fifth, disappearing so as to be scarcely noticeable four or five days after its occurrence. In one of the second class it made its appearance on the second day of the relapse, and was not well marked. In the remaining instance our record does not state the exact period of its onset, but it was early in the relapse. In neither of these was the jaundice as severe as in those in which it made its appearance in the original attack. One of these, a female, became suddenly and deeply jaundiced on the fourth day of the disease, and on the fifth she had well-developed yellow vision lasting for the ensuing three days, though on the last it was less marked than before. One patient, *not jaundiced*, also complained that everything white or light in colour appeared greenish-yellow to her.

In all the cases there was the usual epigastric tenderness, with nausea and vomiting in the early part or throughout the whole of the primary paroxysm. They were as uniformly present in the relapse, and in two cases the latter became a serious symptom. The tenderness varied in degree, but was usually well developed. It came on early, being always more or less perceptible at the end of twenty-four hours, and in one person whom we saw in the initial chill it was well marked.

In the first cases this tenderness was very great, continuing until after the relapse, though growing less in the remission. As the epidemic progressed we saw the tenderness totally disappear in several cases during the paroxysm, while in most others it continued, though much diminished during the whole attack. In the relapse it was always augmented again. In very few cases, indeed, if any, do we see the tenderness confined to the epigastrium, but it almost always extends over into either hypochondriac region. The degree of tenderness was often different upon the two sides, sometimes most on the right, at others on the left. Throughout the whole course of the epidemic we found hepatic as frequent as splenic tenderness.

In all the cases there was enlargement of the liver and spleen. We have seen the liver project three inches below the false ribs, and become exceedingly tender, so that it was examined with difficulty. In this case the earliest symptom was a sharp pain in the epigastrium preceding the chill about two hours, and when the latter appeared there was considerable tenderness. This shows at least that these organic alterations occur very early in the disease, and that they sometimes accompany, if they do not precede, the chill.

Nervous System.—During the primary paroxysm there was always

headache, often very intense, usually distinctly frontal, sometimes both frontal and occipital. The senses of sound and sight were in one case morbidly acute, but in only one case was there any delirium. This was in a young girl on the day after her removal to the hospital, which occurred in the crisis of the relapse. It was easily controlled, and lasted but one night. Nor was there any of the stupor, subsultus, or other nervous symptoms so common in typhoid diseases. Insomnia was marked, and the subject of constant complaint, especially in the early portion of the epidemic. Night after night would pass without a single hour of sleep in the early cases, and all the remedies employed failed to procure it. These statements not only apply to the primary paroxysm, but also to the relapse, the remission, and to the period of convalescence. After the 1st of January, however, this, with other symptoms, became more mild, and was easily controlled by remedies, but anterior to that time it was one of the most fruitful sources of complaint.

Severe pain in the back and joints was almost always present, both during the primary paroxysm and the relapse. It continued in many cases through the remission, when it was apt to be more distinctly articular than during the febrile stages. In four persons it was more in the remission than at any other time. In one case, seen shortly after the primary crisis for the first time, the pain was so definitely located in the joints, especially the knees, shoulders, and elbows, that we suspected rheumatism for several days, and the diagnosis was strengthened by the fact that there was slight swelling of the knees without redness, but with some tenderness on pressure. During the remission and convalescence we frequently noticed loss of power in the extremities. In the earlier cases this was attributed to the joint trouble, but subsequent observation showed that this was not the real cause, a view which is supported by a case which has just passed through the relapse as this is written. During the remission she was much troubled by pain in the joints and back. These were diminished during the relapse, which lasted four days, and entirely disappeared with the second fall of temperature on the nineteenth day. On the twenty-first day, however, she was much alarmed at finding sensation and motion almost destroyed in both the arms and legs. It was with the utmost difficulty that the extremities could be moved at all, and flexion and extension were impossible. In a week both had returned. A delicate girl in her fifteenth year had almost entire motor paralysis of the lower extremities, with deficient sensation coming on twenty-four hours after the end of the second paroxysm. In addition to this there was complete paralysis of the flexor muscles of the right forearm, without any affection of the extensors. At the end of ten days the power began to improve, and in two weeks was perfectly restored. These, of course, were extreme cases. In their minor forms these paralyses were not uncommon, and occurred alike in males and females. Numbness of the extremities was much more frequent

than diminution of power, and usually occurred after the second fall of temperature.

Local paralysis has already been mentioned (Reynolds's *System of Medicine*, vol. i. p. 651) as complicating relapsing fever. Dr. Cormack has spoken of palsy of the deltoid muscles in particular.

In several cases the patients complained of formication during convalescence. In one man this was attended with some hyperæsthesia of the skin of the lower extremities, and with severe pain when the muscles were firmly grasped by the hands. This muscular soreness continued after the increased sensibility had disappeared, and was more or less troublesome for ten days after he had returned to his work.

There was always more or less prostration, but this did not compare in severity with that which attends typhus and typhoid fevers. The patients usually took to bed at once; but, except in the first cases, they were never absolutely unable to arise to attend to the calls of nature. They complained much more of giddiness than debility. This continued during the remission, and often prevented locomotion. It was not uncommon for them to say that they could return to their labours if it were not for this, and beg to have it relieved.

Pulse and Organs of Circulation.—The characters of the pulse were very striking. It always rose with great rapidity. In one instance, just at the close of the initial chill, it was 100. Twenty-four hours later, it had reached 136. The greatest rapidity observed was 152, occurring on the evening of the fourth day of the primary paroxysm, and just preceding the crisis. The patient was a female æt. 18. The rapidity was out of all proportion to the prostration of the patient. It was usual for it to reach 130 or 140, and we never saw it below 110, during either of the febrile stages, when it was generally full, thrilling, and not very easily compressed. It may become more rapid just before the temperature falls, and with all the other symptoms appears more alarming, or on the day previous to the crisis may fall 10 or 20 beats, and thus become the first evidence of the approaching change. A fall from 130 or 140 to 120 was several times observed without any corresponding alteration in temperature or dryness of surface, but it commonly heralded a rapid change at the end of twenty-four hours.

The rapid alterations of the symptoms are the most remarkable characters. A patient left on the previous evening with a raging fever, and a pulse of 140, may have next morning a cool skin and a pulse abnormally slow.

In a woman æt. 25, it was on the fifth day 140, on the sixth 120, and on the seventh 64, a difference of 56 beats in twenty-four hours. This was the slowest pulse met with in thirty-seven cases, but Dr. Muirhead (*Edinburgh Medical Journal*, July, 1870) furnishes a chart of the variations of

the pulse in a case under his care, in which it fell to 44. Obermeier has seen it as low as 48. (*Glasgow Medical Journal*, November, 1869.)

The greatest alteration in frequency which was met with was in the case just alluded to. On the evening of the fourth day it was 152, and at the same time on the fifth, only 80, a difference of 72 beats. This was a greater variation than was noticed by Muirhead, 65 being the greatest fall in his cases.

The pulse was usually slowest on the first or second day of the remission, after which it became normal in frequency, and remained so until the relapse. During the interval it was feeble, irregular, intermittent and compressible. With the onset of the second paroxysm it rose almost as rapidly as it had fallen at the crisis and again became full and thrilling. We have seen it rise with the second fever from 80 to 144, in twenty-four hours, a difference of 64 beats. The pulse bears a definite relation to the changes in temperature, as will be at once seen by inspecting the chart of the latter.

In the febrile stages, the heart acts of course exceedingly rapidly. In thirteen cases a blowing murmur was heard over the base of the organ and in the great vessels. It was present alike in both paroxysms. During the interval, and especially immediately after the crisis, the first sound was very weak, and in five of the patients was almost inaudible, while the second sound was relatively intensified. During convalescence soft blowing murmurs, obviously due to anemia, were heard several times.

Hemorrhages are spoken of in the various accounts of the disease. Epistaxis was not unfrequent, though by no means constant. It was oftener present in children than adults, and usually occurred during the febrile stages. In one patient, a boy aged 7 years, admitted to the children's Asylum of the Philadelphia Hospital, it became very serious, the bleeding being so free as to endanger his life. It was only arrested by plugging the nares. In this case it occurred during the remission.

In two women in whom the menses came on during the progress of the fever, the flow was very profuse. Another one who had suffered from amenorrhœa for four months began to flow shortly after the disorder set in, and the discharge was much more copious than usual. In no case did we meet with relapsing fever in a pregnant woman.

Temperature.—Any one familiar with the disease can diagnose relapsing fever by looking at the temperature chart. As a rule the heat rises quickly, reaching 104° or 105° on the second day, when the cases usually come under observation, after which it may become still more elevated or the daily temperature, taken at the same time, may fluctuate slightly until immediately preceding the defervescence, when it, with all the symptoms, seem to reach their maximum. The patient at this time often appears to be in a most alarming condition, being restless, suffering from distressing headache, burning hot skin, and often with a pulse reaching

140 or more. In a few hours, however, the condition may totally change, the temperature falling below the normal, the skin becoming moist and cool, and the pulse slow. The greatest variation noticed in the cases made the basis of this article was ten and a half degrees. On the evening of the fourth day the mercury reached 106.5°, where it still remained the next evening; but on the evening of the sixth day it had fallen to 96°, the lowest noticed in any case. (See Diagram I.) In this case occurred the highest temperature met with in the initial paroxysm.

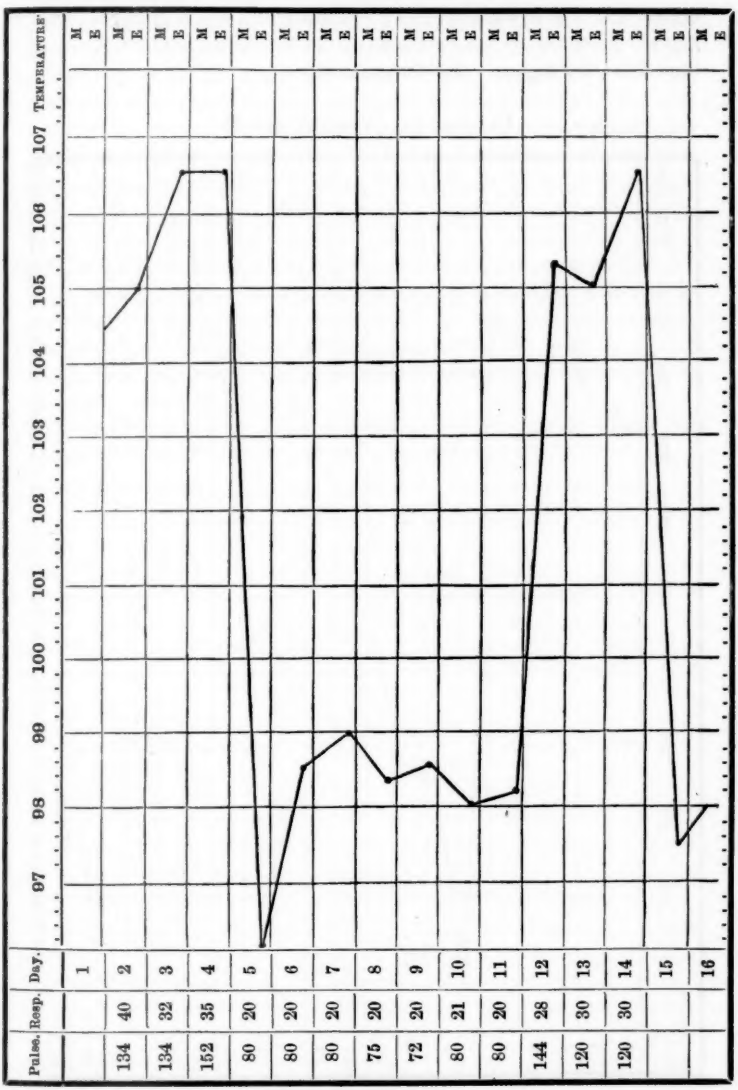
When the relapse sets in the heat again increases as rapidly as it has fallen at the beginning of the intermission, rising from the normal to 104°, 105° or even higher in less than twenty-four hours. The second defervescence is as rapid as the first, and as the second elevation of temperature. During the intermission the body heat is less than natural, especially during the first day. On the second day it is very apt to rise nearly to the normal standard, where it may remain, fluctuating slightly, until the relapse sets in.

The highest temperature may be reached in the first or second paroxysm. In the primary attack the maximum noticed was 106.5° Fah., on the fourth and fifth days. In the second paroxysm the point reached was 108°, the highest in any case. This occurred in a female, on the sixth day of the disease, and third of the relapse.

The variations of temperature and pulse in this patient were as follows:—

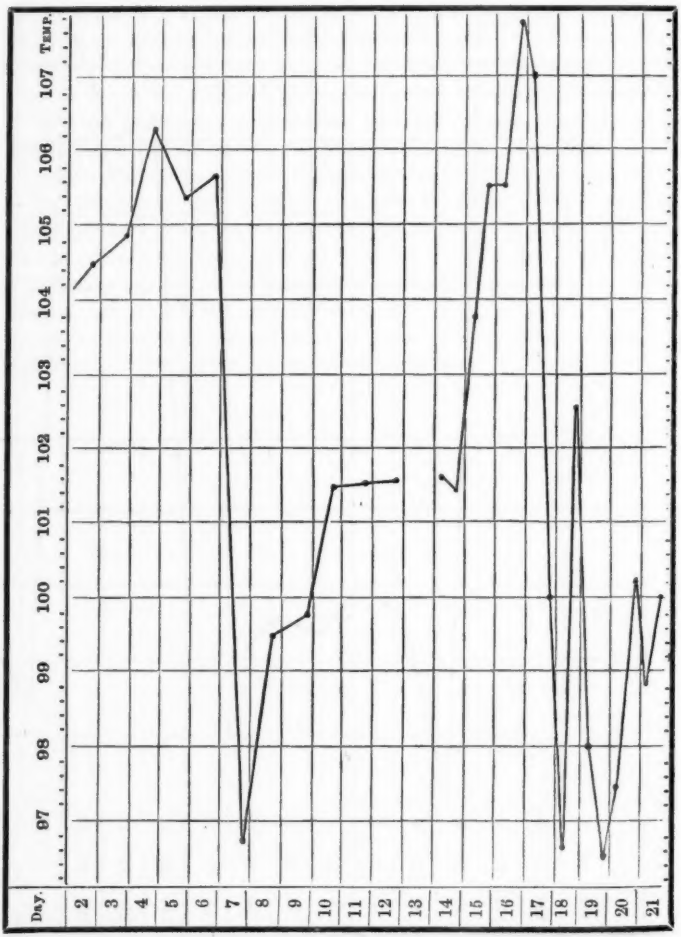
Day.	Pulse.		Respiration.		Temperature.	
	Morning.	Evening.	Morning.	Evening.	Morning.	Evening.
2 . . .	...	136	...	...	...	104.5
3 . . .	...	136	...	...	...	104.75
4 . . .	...	140	...	36	...	106.5
5 . . .	...	140	...	24	...	105.25
6 . . .	...	120	...	36	...	105.75
7 . . .	....	64	...	20	...	96.75
8 . . .	...	80	...	24	...	99.5
9 . . .	...	86	...	20	...	99.75
10 . . .	...	80	...	20	...	101.5
11 . . .	...	80	...	20	...	101.5
12 . . .	...	80	...	21	...	101.5
14 . . .	81	102	18	28	101.5	101.25
15 . . .	112	126	27	26	103.75	105.5
16 . . .	130	135	22	23	105.5	108
17 . . .	126	90	31	30	107	100
18 . . .	81	120	21	24	96.75	102.5
19 . . .	81	98	18	19	98	96.5
20 . . .	84	83	18	20	97.5	100.25
21 . . .	102	90	24	23	98.75	100
22 . . .	96	90	21	24	100.25	100
23 . . .	84	90	20	24	99.25	100
24 . . .	93	90	24	24	99.25	100
25 . . .	90	...	18	...	101.25	

DIAGRAM I. FEMALE, aged 18.



Of six cases seen on the second day and observed carefully the maximum temperature occurred in the primary paroxysm in two, in the relapse in three, though in one of the latter the difference was only two fifths of a degree. In one it was alike in the original attack and the relapse. The greatest difference in the maximum of the two paroxysms was one and three-fifths of a degree. (See Diagram II.)

DIAGRAM II. FEMALE, age 25.



The pulse and respirations obey the same laws as the temperature in their variations, rising rapidly with it, in the first instance, and falling as suddenly in the second even below the normal.

The temperature charts accompanying this paper are from uncomplicated cases. No. 1 was a very severe case, and shows very clearly the typical line of temperature, with its rapid falls and elevations. The patient which gave the second diagram and the preceding record was remarkably ill. The crisis was as abrupt as usual, but the body heat began to increase immediately after the fall, and continued to rise without any complication for three days, after which it remained stationary at about 101.5° until the relapse on the fifteenth day. It is to be regretted that we could not make two observations daily, but outside of hospitals this is often impossible, and it was so here. It is possible that the morning temperature was nearly normal, while that at 6 P. M. was as noted. After her admission to the Philadelphia Hospital the observations were made twice daily, and I am indebted to my colleague, Dr. Rhoads, for the privilege of using the record, and to my friend, Dr. C. H. Bogman, then acting as Resident Physician, for the very careful manner in which it was made.

The following table is chiefly interesting, from the relapse lasting but twenty-four hours. The patient was a boy five years old:—

Day of Disease.	Pulse.	Respiration.	Temperature.
3	136	40	106
4	130	40	105.5
5	140	40	105
6	120	45	105.5
7	80	30	99.25
8	75	28	98.5
9	72	24	98.25
10	70	24	98.5
11	75	20	98.5
12	70	...	99
13	70	...	98.25
14	120	35	104.5
15	95	20	99
16	70	20	98.5

Urine.—Unfortunately the urine could not be subjected to the proper examination when these cases were under observation. It underwent important alterations in quantity, especially in the first patients seen. In all, however, it was diminished in amount and darkened in colour during the febrile stages, increasing in quantity and becoming lighter in colour during the remission. In four cases the secretion was almost suppressed. This occurred after the relapse, when the patients were exceedingly weak, and sweating most profusely. Two for several days in succession did not void more than an ounce in twenty-four hours, yet there were no evidences of retention of urea, nor did the perspiration have a

urinous odour. In these, and only these, was the fluid tested for albumen and examined for tube casts. It contained none.

Relapses.—Only three cases had more than one relapse, and all of these but two, the second occurring on the twenty-eighth day of the disease. The uniformity in the period at which the relapse occurred struck us early in the study of the disease. The first in the majority of cases, as will be subsequently shown, happened on the fourteenth or fifteenth day, without regard to the duration of the primary paroxysm.

In several cases under our care during the prevalence of this epidemic, the symptoms of relapsing fever were well marked, but the disease terminated without any subsequent paroxysm. From these observations we are led to believe that in mild cases the disease may be arrested after having passed through the initial stage, or else that the relapse may be so mild as to escape notice unless the patient is very carefully observed.

This opinion is supported by a case in which the relapse lasted but one day, yet the difference between the temperature on the evening of the thirteenth and on the evening of the fourteenth day of the disease was $6\frac{1}{5}$.° In this instance we are confident that the relapse would have escaped notice had the child been less carefully watched.

Duration of Disease, and its Stages.—The whole duration of undoubted cases was never less than three weeks, with a single exception, a boy aged five years, in whom the relapse lasted but one day. The whole duration of the cases occurring before the first of January, was much greater than the same in those afterwards, the actual period in bed being on an average for five cases six weeks. One was not able to sit up until the end of the eighth week. In these patients the condition of tongue and gastric disturbance previously described, was accompanied with great debility and most profuse sweating.

After the commencement of the present year, when the symptoms were more mild, the average duration was about four weeks. In children under twelve years the disease made a shorter course, and was much milder in cases coming under our care. The longest duration was twenty-two days, the shortest fifteen. In this instance the child was apparently perfectly well from the ninth to the thirteenth day, and played as usual. On the fourteenth day the relapse occurred, lasting but twenty-four hours, and terminating as usual. During the afternoon of the sixteenth day he was playing in his room, and on the seventeenth had gone out as usual.

Duration of Stages.—The initial paroxysm lasted from four to eleven days, the latter occurring in a complicated case. In a majority of cases it terminated on an uneven day of the disease. This was true of twenty-four out of thirty-six cases. The following is the duration in twenty-five: In two, it lasted four days; in seven, five days; in two, six days; in ten, seven days; in two, nine days; and in only a single instance was it pro-

longed until the eleventh day. In more than half the cases, therefore, the primary attack terminated on the fifth or seventh day.

The relapse, in the majority of cases, occurred on the fourteenth or fifteenth day. In twenty-four cases it happened on the former in eight, and the latter in eleven. Of the remaining cases it occurred in one on the eleventh, two on the thirteenth, in one on the sixteenth, and another on the nineteenth day.

The duration of the relapse was almost always less than that of the primary paroxysm in the same case. In twenty-four cases it lasted, six days in one, five days in six, four days in one, three days in ten, two days in five, and one day in one. The second relapse ran a still shorter course. In two of the three cases in which a third paroxysm occurred, its duration was three days, and in one it lasted but one day.

Diagnosis.—The peculiar characters of the affection are so striking that the physician can have but little difficulty in detecting relapsing fever. The sudden onset, with rapid elevation of body heat, an exceedingly fast pulse, nausea, vomiting, epigastric and hypochondriac tenderness, with enlarged spleen and liver, serve to distinguish it when the patients first come under observation. The rapid fall of temperature and rate of pulse, with the relapse on the fourteenth or fifteenth day, make the diagnosis certain.

This, however, is not the chief difficulty. When the writer met the disease on the 10th of September, 1869, it was not known that relapsing fever had found its way to Philadelphia, and he is free to confess that he was at first unable to determine the true nature of the disorder. It was so obviously neither typhoid nor typhus fever that the question hardly needed discussion, and hence for some time it was thought to be a severe form of remittent fever, and treated as such.

Large doses of the alkaloids of cinchona given immediately before the primary crisis were thought to have influenced its production, and hence the error was confirmed at first, and it was only after the evident failure of these remedies either to shorten the primary paroxysm or to prevent the relapse, that it was concluded that we had to deal with a new or unusual fever. Thus the diagnosis of relapsing fever was made, by exclusion—if you please.

The two diseases are alike in the suddenness of onset, in the presence of nausea, epigastric tenderness, the splenic enlargement, and the occurrence of jaundice. In remittent fever, however, there is a daily diminution of temperature with corresponding fall of the pulse, such as is not met with in this disease.

Dr. E. L. FOX asserts (*Med. Times and Gaz.*, March 5th, 1870) that "morning remissions" in relapsing fever "are either absent altogether or very insignificant," as shown by actual thermometric observations. In remittent fever, this instrument would probably show a fall of temperature

in the morning, even if there was no change in the pulse. Remittent fever follows a very different course if left to itself. There is no sudden change in the condition of the patient, such as is seen in this disease with a relapse at the end of the second week.

Complications.—The fever ran its course in the majority of instances without complication. In five cases, three males and two females, intercurrent pneumonia occurred. In three of these, it was noticed during the primary paroxysm and in two during the relapse. In one, a man aged 40, the pneumonia was double, and the right lung became gangrenous, yet the patient recovered.

Sequelæ.—The first patient we saw in the epidemic had mild ophthalmia in convalescence. Slight œdema of the feet was not uncommon in the worst cases after they left their beds. In the early part of the epidemic dyspepsia and flatulence were noticed.

Mortality.—All the patients recovered, though convalescence was often exceedingly slow.

Treatment.—In regard to this we have nothing new to offer. All that can be done is to carefully watch the patient and meet the indications as they arise. Experience has furnished us with no knowledge which would enable us to cut short the fever or prevent the relapse. In the early part of the epidemic, as the patients were thought to be suffering from remittent fever, large doses of cinchonia and quinia were administered. The rapid fall of temperature on the fifth or seventh day was at first supposed to be due to the remedy, which was then given in ʒss doses daily. The occurrence of this relapse misled us still further, as it is characteristic of malarial fevers to observe septenary periods in their recurrence. The daily quantity of the drug (cinchonia) was then doubled, but without any better result. Sulphate of quinia was then resorted to, first in ʒss and afterwards in ʒj doses in twenty-four hours, without any success, no matter whether taken before or in the relapse.

The preceding remarks in regard to the uselessness of quinia are totally at variance with the results reported to have followed its administration at St. Bartholomew's Hospital (*British Medical Journal*, February 26, 1870), where it was said to have prevented the relapse in the three cases admitted. Dr. Muirhead, criticizing the statement, suggests that the patients were admitted in the relapse, and not in the primary paroxysm. (*Edinburgh Medical Journal*, July, 1870.) This is the truth we have no doubt, or else they were not relapsing fever. The testimony in favour of the inefficacy of antiperiodic doses of quinia is so overwhelming that such a statement from such an honourable institution is astonishing.

This remedy was used thus in the first five patients, and it is exceedingly interesting to note that it did not increase the headache, and that in no case was there any ringing in the ears, or other symptoms of cinchonism. Two persons took ʒj of quinia in less than twelve hours, it being admin-

istered in three or four doses three hours apart. Even in these it produced no unpleasant effects.

The use of antiperiodics was now abandoned, and the mineral acids employed, ɱv of the strong muriatic being prescribed every two or three hours, either alone or combined with Huxham's tincture of cinchona. When profuse sweating made its appearance the aromatic sulphuric acid was sometimes substituted for the muriatic acid, and continued throughout the whole course of the disease. Neither appeared to do any real good. Dr. Flint, Senior (*New York Medical Journal*, March, 1870), suggests their use in this disease, but if we were to meet with it again we would not prescribe them with any great confidence.

In short, it seems as if the therapeutics of relapsing fever are almost entirely limited to the diminution of the excessive body heat, the prevention of complications, and the relief of a few special symptoms, as the insomnia and articular pains. Unfortunately there are few or no agents that influence the temperature permanently. Simple febrifuges, the ordinary effervescing mixture, and solution of acetate of ammonia, with cold sponging, are as good as anything. Depressing febrifuges of course must not be employed. Quinia in smaller doses than those previously mentioned does not affect the heat of the body. After the crisis has occurred, however, this agent is, we think, valuable to support the patient. After trying many drugs we got to using quinia with camphor during the remission and after the relapse. The doses prescribed were two or three grains of the former to three, four, or five of the latter every two or three hours. They were not administered because they were supposed to shorten or even materially modify the progress of the disorder, but because the patients usually bore spontaneous testimony to the fact that they relieved the sense of prostration, and tended to produce sleep. The remedies were well borne, and did not produce nausea.

Among the symptoms demanding relief are the insomnia and pains in the limbs and joints. During the early part of the epidemic these resisted all the narcotics which we employed. It seemed almost impossible to get the patients to sleep. Bromide of potassium, in doses varying from twenty to thirty grains, every two hours, had no other effect than to produce irritability of the stomach. Opium was not more successful. Several persons took three grains every two hours throughout the afternoon and night without producing any sleep. This was not only true of solid opium but also of its fluid preparations and its alkaloid morphia. The medicine did not even produce contraction of the pupil.

Dr. Frederick W. Lewis, who treated a number of cases of relapsing fever in the western portion of the city during the latter part of last and the commencement of this year, tells us that he noticed the same remarkable tolerance of opium and its preparations. The doses which he employed were even larger than those which have been mentioned. In truth, until

after the middle of last January, it seemed as if all medicines had lost their influence in these cases. Purgatives acted very slowly, very imperfectly, or not at all. One woman took four compound cathartic pills in the evening; four pills containing ten grains of blue mass, twelve of compound extract of colocynth, and two of extract of hyoscyamus during the next day; on her own responsibility, nearly an ounce of salts the succeeding morning, and two Seidlitz powders in the evening, and then had only one small stool. It was with utmost difficulty that she could be prevented from taking afterwards a dose of senna and manna. This is by no means an isolated case in our experience.

These remarks, in regard to the tolerance of drugs, apply only to the cases treated in the early part of the epidemic. It was chiefly confined to those who suffered with the red fissured tongue, which has been described. As the epidemic progressed and the symptoms became less severe we had no difficulty in procuring sleep and quieting pain. After February 1st ʒiij, of liq. morph. sulph., frequently gave relief and a good night of sleep. If it failed, a second dose of ʒj or ij, at the end of two or three hours, was nearly always successful. While on this subject it might not be amiss to say that where opium failed belladonna and hyoscyamus were both tried, but with no better success.

Stimulants were very sparingly prescribed. In only two cases were they given in any quantity, and they were complicated with pneumonia. The chief reliance was placed upon a plentiful supply of beef-tea and milk, especially the latter, which was usually taken without difficulty. Good feeding is, we believe, the most important element in the treatment.

As has already been stated, no remedy was found to prevent the relapse. Arsenic was administered in several cases in large doses. It did no good whatever. In one it quickly produced œdema of the eyelids, but the relapse occurred two days afterwards, and while she was taking the medicine in smaller doses. It was not well tolerated, as it produced irritability of the stomach. The sulphites and hyposulphites were then tried, with the same results, but without affecting the digestive organs seriously. As a last resort we tried the preparations of chlorine, at the suggestion of Dr. Ludlow, but the disease still ran its course with unabated violence.

1513 ARCH STREET, PHILADELPHIA, July 1st, 1870.

ART. IV.—*Meckel's Ganglion, and the propriety of its removal for the relief of Neuralgia of the Second Branch of the Fifth Pair of Nerves.* By P. S. CONNER, M. D., Prof. of Surgical Anatomy in the Medical College of Ohio.

IN Dr. Carnochan's well-known report of the cure of three cases of neuralgia of the second branch of the fifth pair by exsection of the superior maxillary trunk,[1] occurs the following sentence:—

"I believe that, in such aggravated cases of neuralgia, the key of the operation is *the removal of the ganglion of Meckel, or its insulation from the encephalon.* Where even a large portion of the trunk of the second branch of the fifth pair has been simply exsected from the infra-orbital canal, the ganglion of Meckel continues to provide to a great extent the nervous ramifications which will still maintain and keep up the diversified neuralgic pains. Besides, the ganglion of Meckel, being composed of *gray matter, must play an important part as a generator of nervous power,* of which, like a galvanic battery, it affords a continual supply; while the branches of the ganglion, under the influence of the diseased trunk, serve as conductors of the accumulated morbid nervous sensibility."

The "Carnochan operation" (using this expression to denote the exsection in general, without reference to the particular method of operating) has been at least thirteen times performed, and several of the operators have evidently considered Meckel's ganglion the objective point to be reached and the important part to be removed. In view of the magnitude of the operation and its claimed curative effect, it is worth while to determine, if possible, whether or not the removal of Meckel's ganglion *is* the "key of the operation."

To do this the anatomy and physiology of the parts involved, and the immediate and ultimate results of the experimental and surgical ablations of the ganglion must be considered.

Shortly after the superior maxillary nerve has passed through the foramen rotundum, and has given off its subcutaneous malar branch, it divides into the infra-orbital and spheno-palatine (otherwise known as the pterygo-palatine, and by Prevost styled naso-palatine) nerves. The spheno-palatine division may be only a single trunk, more commonly is made up of two, three, or more fillets (the spheno-palatine plexus of Luschka), that enter the "anterior broader portion" of Meckel's ganglion, and furnish unquestionably its *sensitive* root-fibres. Into the posterior part of the ganglion, where the gray ganglionic substance is most abundant, there enter by a common trunk (the Vidian nerve) the *motor* and *sympathetic* roots. By the older anatomists and by some of the more recent writers these roots have been described as efferent and not afferent nerves, the trunk formed by their union while passing through the pterygoid canal being termed the Vidian, pterygoid or recurrent branch from the ganglion. It has, however,

[1] American Journal of the Medical Sciences, January, 1858.

been proved beyond question that the "upper fibrous white portion of the Vidian," *i. e.*, the N. petrosus superficialis major, is a motor nerve coming from the facial, having united with it, according to Hyrtl and Luschka, sensitive fibres, sent off from the superior maxillary to the facial; while the lower portion of the Vidian, the N. petrosus profundus, is a sympathetic nerve, its filaments coming off from the carotid plexus and passing forward to the ganglion.[1]

The ganglion itself (variously known as Meckel's, the spheno-palatine, pterygo-palatine, nasal, rhinic, and sphenoidal ganglion) "lies imbedded in fat in the depths of the pterygo-palatine fossa, close to the spheno-palatine foramen," and about six mm. (Luschka) distant from the superior maxillary nerve. Sometimes round, more commonly "triangular or cordiform in shape, its pointed end, directed posteriorly, is formed principally of gray ganglionic substance, while the anterior broader portion shows only traces of gray matter."[2] The fibres of the nerves entering into the ganglion in large part continue directly through and reappear in the efferent branches, in part, however, they "are seen, especially in the centre of the ganglion, as very fine nerve-threads that, intercrossing, groove the ganglion in every direction, and lose themselves in its cellules.[3] These latter, chiefly found in groups, "are contained in a cellular stroma," and, varying in size and much more in number, give origin to the ganglionary fibres, if there be such, that pass out as independent nerves, and associated with those afferent fibres that are continued directly through. According to Robin[4] the ganglionic corpuscles are the same as those in the spinal ganglia, much more abundant in proportion to the "accessory elements," and associated with much less amorphous granular matter than in the visceral ganglia. Polaillon, on the contrary, classes the ganglion with those of the sympathetic chain, because of the preponderance of small ganglion-globules over the large ones characteristic of spinal ganglia.[5]

From the ganglion proceed nerves containing fibres from one, two, or the three roots already mentioned, and also, as we have noticed above, some probably originating in the ganglion cells. These nerves are distributed to the nose, the hard and soft palate, the upper part of the pharynx, and the orbit. The nasal branches, superior, middle, and inferior,[6] entering the

[1] In Prevost's investigations (Réch. Anat. et Physiol. sur le Ganglion Spheno-Palatin, *Arch. de Physiologie*, 1868), he was not able, in dogs, to trace back the sympathetic fibres to the carotid plexus; and found in these animals, but not in cats, a very constant sensitive branch from the superior maxillary nerve to the Vidian posterior to the ganglion.

[2] Hyrtl, Anat. des Menschen, p. 812.

[3] Prevost, op. cit., p. 11.

[4] Referred to by Hirschfeld, *Nevrologie*, p. 213.

[5] Etudes sur la Text. des Gangl. Nerv. Periph., *Journal de l'Anatomie et de la Physiologie*, 1866, p. 259.

[6] N. nasal, super. ant., and N. nasal, poster. of Meckel.

nose through the spheno-palatine foramen, and from the posterior palatine canal by openings in the palate bone, are distributed to the mucous membrane covering the superior, middle, and inferior turbinated bones, the adjacent external wall of the nasal fossa, and the septum narium; the largest of the septal nerves (the naso-palatine nerve of Scarpa) being ultimately lost in the mucous membrane behind the incisor teeth. This naso-palatine nerve of Scarpa may arise from the ganglion, the palatine nerve, or the pterygo-palatine nerve,[1] and with the middle nasal nerves anastomoses with the plexus dentalis of the infra-orbital nerve. All these "nasal branches are real prolongations of the sensitive root of the spheno-palatine ganglion," the fibres of which have traversed the ganglion and received filaments from the sympathetic root; the septal nerves also perhaps getting additional ganglionary fibres, certainly doing so in some of the lower animals.[2] The palatine branches, anterior, middle, and posterior, descend through three separate channels in the posterior palatine canal, and are distributed to the mucous membrane of the hard and soft palate, and of the uvula, and to the levator palati and azygos uvulæ muscles. The filaments to these muscles constitute in part the posterior branch, and are motor in character, coming off from the seventh pair, as the N. petrosus superficialis major. All these palatine branches are prolongations of the fibres of the ganglion-roots, none of the filaments having been found to have their origin in the ganglion cells.

The pharyngeal branches, exhibiting much "variety in size, number, and origin," are distributed to the mucous membrane of the upper part of the pharynx, the posterior superior part of the nasal fossa, and the parts immediately around the Eustachian orifice.

"The orbital branches pass through the inferior orbital fissure and are distributed to the periorbit." "Tiedemann once found a nerve fillet arising from the spheno-palatine ganglion and joining the short root of the ophthalmic ganglion."[3] Luschka[4] found two or three fine branches from the ganglion, distributed to the sphenoidal and posterior ethmoidal cells. The sympathetic fibres sent to the "capsule enveloping the eyeball and its striated muscles," are probably distributed to the bloodvessels and not to the smooth muscular fibres of the capsule.

The sympathetic fibres coming into the ganglion as we have seen with the motor (the two sets together constituting the Vidian nerve), are in part distributed to the ganglion cells, in part, after much interlacing both in the interior and on the surface of the ganglion, pass out in company with the other efferent branches and in separate filaments to be ultimately distributed to the "nasal mucous membrane, the internal maxillary artery

[1] Meckel, Manuel d'Anatomie (Jourdan et Breschet), tome iii. p. 95.
[2] Longet, Syst. Nerv., tome ii. p. 112.
[3] Prevost, cit. op.
[4] Anat. des Mensch., iii. p. 518.

and the fibro-muscular sheath of the orbit or more probably the neighbouring vessels." As has already been stated no sympathetic fibres originating in the ganglion cells, have in man been discovered.

To recapitulate, the spheno-palatine ganglion receives sensitive fibres from the second branch of the fifth pair, motor from the seventh, sympathetic from the carotid ganglionic plexus. It sends out branches to the mucous membrane of the nose, palate, and pharynx, to the levator palati and azygos uvulæ muscles, to the musculo-fibrous capsule surrounding the eyeball and its striated muscles, and to the walls of the internal maxillary artery and its branches.

The physiology of the various efferent branches has not been so accurately determined as has their anatomy. The nasal, palatine, and pharyngeal branches (leaving out of consideration their sympathetic and motor fibres) have generally been believed to be the filaments of the fifth pair by which the parts supplied are endowed with general sensibility. Unquestionably it is the fifth pair that gives this sensibility, for intracranial section of the nerve destroys sensibility "not only in the superficial but also in the deep parts of the face."[1] It is therefore a most natural conclusion that it is the nasal, palatine, and pharyngeal branches of Meckel's ganglion by which this sensibility is given to the nasal fossa, the palate, and the upper part of the pharynx. In none of the reports of surgical ablation of the ganglion, so far as we can find, is any mention made of the after-degree of sensibility of these parts. In the three cases that have been operated upon in this city, there is now much less acute sensibility of the nasal fossa and the palatine half-vault than is present in the corresponding parts on the sound side. Both Bernard[2] and Prevost,[3] however, have found that after the ganglion has been experimentally removed, the general and tactile sensibility of the mucous membrane remains unimpaired. The marked contrast between the acute sensibility of the infra-orbital nerve and the insensibility to mechanical irritation of the nasal branches from the ganglion inclined Bernard to the belief that these latter were nerves of *special* sense and concerned with the olfactory nerve in the perception of odors. Physiologists generally have not agreed with him in this belief, and Prevost reports[4] that "the ablation of the two spheno-palatine ganglia produces no notable disturbance in the sensibility either tactile or *olfactory* of the nasal mucous membrane." That the fifth pair is not directly concerned in olfaction has been shown clinically by many cases of anosmia in which general sensibility has remained long after the entire loss of the special sense.

The nerve fibres distributed to the levator palati and azygos uvulæ muscles are, in all probability, motor, associated with the sensitive fibres

[1] Bernard, Syst. Nerv., tome ii. p. 93.
[2] Op. cit., tome ii. p. 95.
[3] Op. cit., p. 214.
[4] Op. cit., p. 214.

very likely as suggested by Longet[1] in order that the contraction of these muscles may protect against disagreeable odours, "as the iris protects against too intense light." Debrou concluded from the results of his electrization of the facial nerve within the cranium that this nerve "gives rise to no movements of the velum palati." Nuhn, on the contrary, "by galvanic irritation of the facial within the cranium, in the case of a decapitated man, produced movements of the velum palati.[2] If these muscles receive any motor fibres from other encephalic nerves, then, of course, their paralysis need not follow ablation of the spheno-palatine ganglion. Swan[3] states that the levator palati receives filaments from the pharyngeal plexus, and according to Volkmann the par vagum has an influence on the motion of the levator palati.[4] The published reports of the various cases in which the "Carnochan operation" has been performed, throw no light upon this point in the physiology of the ganglion. In Dr. Blackman's case there does not now seem to be any paralysis of the levator palati; there is slight deviation of the uvula to the left, but this may be, as lateral deviation of the uvula often is, congenital. In Dr. Foote's case there is now some paralysis of the levator palati, and a decided deviation of the uvula to the affected side.

The sympathetic fibres from the ganglion play their ordinary role in the secretion of, and circulation through, the various parts to which they are distributed. Those that we have already seen to be ultimately lost on the fibro-muscular eye-capsule were, by Müller, thought to be concerned, by distribution to the smooth muscular fibres of the capsule, in effecting projection of the eyeball; but Prevost and Jolyet's experiments[5] seem to be conclusive, and to establish the fact that the nerve fibres are not distributed to the muscular fibres of the capsule, but to the accompanying bloodvessels, and consequently have no influence upon the projection of the eyeball, a "phenomenon that continues even after the entire ablation of the spheno-palatine ganglion."[6]

Respecting the physiology of the ganglion itself but "little is known," and a diversity of opinion prevails, not only as to its office, but even its nature, whether allied to the spinal or sympathetic ganglia. That it is the latter is generally believed, and the ganglion is described by most writers as one of the cephalic ganglia of the sympathetic system. But Hirschfeld[7] declares that it does not belong to the ganglionic system of the great sympathetic, but is one of that "series of little ganglia in the head that are to the third and fifth cranial nerves what the intervertebral ganglia are to the spinal nerves." He says that when the ganglion is absent,

[1] Traité de Physiologie, tome iii. p. 576.
[2] Longet, op. cit., tome iii. p. 577.
[3] Demonstr. Nerves of Human Body, p. 22.
[4] Bock, Anat. des Mensch, ii. p. 725.
[5] Prevost, op. cit., p. 221 et seq.
[6] Ibid., op. cit., p. 232.
[7] Op. cit., p. 213.

as it often is, its branches always come off from the fifth pair; that though its sympathetic root is often wanting its motor and sensory roots connecting it with the cranial nerves are always present; that it contains much less gray matter than the sympathetic ganglia, so much so that at times it has as white a colour as the cranial nerves themselves;[1] that its intimate structure is in every respect analogous to that of the intervertebral spinal ganglia, while it differs from that of the splanchnic ganglia. He considers that the anatomical differences mentioned by Robin (already referred to) show still more that this ganglion, like the Casserian, is not to be regarded as of the sympathetic system. It has already been seen that Polaillon holds that this view is incorrect.

The size of ganglion cells and their polar character will not suffice to determine to which of the two classes of ganglia such cells belong. A prevalent opinion has been that large cells belong to the rachidian, and small cells to the sympathetic ganglia, and this is unquestionably true in the main, but all sizes of cells can be found in the spinal and head ganglia. Occasionally, though rarely, large cells are met with in visceral ganglia, and small cells occur "where the sympathetic system is not to be thought of," as "in the brain, the spinal cord, the retina, and the cochlea."[2] Remak maintained that in the sympathetic ganglia only multipolar cells occur, but Kölliker declares that this "is certainly incorrect,[3] unipolar cells being particularly met with," but bipolar and multipolar cells also being present.[4] According to Duchenne[5] very few of the cells in the cervical sympathetic ganglia are apolar, by far the most being bipolar. Beale[6] contends that at least two fibres arise from every ganglion cell. Polaillon[7] is "more and more inclined to deny the existence of apolar cells, and convinced that they have always two or more poles, although not prepared to deny absolutely the existence of unipolar cells." "There does not appear to be any material difference of structure between the ganglia of the sympathetic and those of the cerebro-spinal system, excepting, as Henle states, the existence of a greater number of gelatinous fibres in the former."[8] The cellules, therefore, will not indicate whether Meckel's ganglion is spinal or sympathetic-like.

The presence or absence of fibres arising from the cellules was by Bernard considered a certain guide in the assigning of a ganglion to one or the other

[1] It was noticed by Swan (op. cit., p. 17) that the ganglion is at times almost without any ganglionic appearance; and Cruveilhier (*Anat. Descript.*, t. iv. p. 639) states that, "in a certain number of cases, I have searched in vain for any ganglionic structure, that is to say, gray substance and a dispersion of white fibres through it.

[2] Kölliker, Gewebelehre, p. 326.

[3] Kölliker, op. cit., p. 326.

[4] Ibid., op. cit., p. 318.

[5] Gazette Médicale, 1865.

[6] How to Work with the Microscope, p. 146.

[7] Op. cit., p. 252.

[8] R. B. Todd, Cycl. Anat. and Phys., vol. iii. p. 650.

system. He says:[1] "The ganglia of the great sympathetic give origin to nerve filaments in this differing from the intervertebral ganglia of the spinal nerves, which never directly furnish any filaments. When one sees a nervous ganglion supplied with nerve-fibres originating from it, it may be regarded as appertaining to the great sympathetic system." Were this true there could be but little question as to the spheno-palatine ganglion being sympathetic, for, as has already been stated, both in dogs and cats Prevost found fibres of ganglion origin, and the existence of such in man, though not as yet discovered, may by analogy be legitimately inferred. But the intervertebral ganglia do give rise to nerve fibres. This fact, announced by Waller, was confirmed by Samuel,[2] is accepted by Bock,[3] Schiff,[4] and Bidder,[5] and is strongly insisted upon by Baerensprung.[6] Vulpian[7] says: "There are found in all spinal nerves," besides the sensitive and motor fibres, "others less numerous, the central extremities of which are found in the spinal ganglia." Kölliker[8] states that "every ganglion may be considered as the source of new nerve-fibres," and that "the greater part of the ganglion globules (of the spinal ganglia) appear to be united to nerve-fibres; sometimes they give origin to but a single one, sometimes to two or more fibres."

Neither the cellules of, nor the fibres from the spheno-palatine ganglion prove then that the general opinion of its sympathetic character is correct. The proof must be found if at all in its physiology, not its anatomy.

The intervertebral ganglia are known to be acutely sensitive to pinching. The sympathetic ganglia Bernard maintains are insensible to such irritation,[9] and this view has been held by Bichat, Wutzer, Lobstein, and Dupuy. But Colin[10] found that *all* ganglia are sensitive, and Budge[11] determined by experiment that the sympathetic ganglia are so, but in an unequal degree, and all less than are the fifth pair and the posterior roots of the spinal nerves. Haller, Flourens, Brachet, Meyer, J. Müller, and Longet[12] have found the sympathetic ganglia more or less sensitive to pressure and slight irritation. Pinching Meckel's ganglion produces, according to Bernard, no very evident sensibility, according to Prevost none at all, while tearing it away gives rise to very acute pain, "owing doubtless to the unavoidable laceration of neighbouring sensitive fibres." The severe pain experienced by Dr. Mussey's patient[13] when the ganglion was

[1] Op. cit., tome i. p. 299.
[2] Mougeot, Recherch. sur quelq. troubl. de Nutrit., etc., p. 67.
[3] Op. cit., p. 559. [4] Lehrbuch der Musc. u. Nerv. Phys., p, 119.
[5] Reichert & DuDois Reymond's Archiv., 1865. [6] Mougeot, op. cit., p. 67.
[7] Jour. de Phys., 1862. [8] Op. cit., p. 317.
[9] Op. cit., tome i. p. 324.
[10] Compt. Rendus, 1861, referred to by Edes, Phys. and Path. Symp. Syst. p. 15.
[11] Deutsche Klinik, 1858. [12] Op. cit., tome iii. p. 593.
[13] Cincinnati Lancet and Observer, Aug. 1869.

seized with the forceps was very probably due to the taking up of some sensitive fibres adjacent.

So far the spheno-palatine ganglion is more nearly sympathetic than spinal.

Has it any trophic action, and will the determination of this throw any light upon its ganglion character? It has already been seen that fibres arise from the cellules of the intervertebral ganglia, the sympathetic ganglia, and probably from Meckel's ganglion in man. These fibres, or some of them at least, are the conductors of nutritive influence originating in the cellules. Bock considers "influence on the nutrition of nerves" one of the "experimentally determined properties of ganglion substance." Budge, Samuel, Baerensprung, and Vulpian have found spinal ganglia to be nutritive centres. That sympathetic ganglia also exercise a trophic action has been frequently demonstrated, notably by Waller in his experiments upon the cervical sympathetic, the degeneration resulting from section proceeding up to but not beyond the ganglion.

Acting upon the recognized law that when by section or otherwise "a nerve is separated from the nerve centres, it undergoes, in a few days, a degeneration that produces a loss of its physiological properties and functions," Prevost[1] cut the nerves before entering and after leaving the spheno-palatine ganglion, and studied the resulting changes. When "the naso-palatine nerve (*i. e.*, the sensitive root), was spared, the proportion of altered fibres was extremely small in the nasal fossa, and almost nothing in the palatine vault." When the same nerve was divided above the ganglion, there was not a healthy fibre in the palatine vault, though some undegenerated nerve tubes were found in the nasal fossa, "which without doubt came directly from the ganglion or from the Vidiano-maxillary nerve." "The trophic action that the ganglion exercises upon the nerves of the nasal and palatine mucous membrane is very limited, and concerns but very few of the nervous filaments."

Meckel's ganglion therefore has but little influence upon the nutrition of nerves, in this differing from sympathetic and still more widely from spinal ganglia; differing also from the ganglion of Gasser, which is the trophic centre of the branches of the fifth pair,[2] is in many respects closely allied to the spinal ganglia, and with which the spheno-palatine ganglion was joined by Hirschfeld in his assignment of the cranial ganglia to the rachidian class.

Sympathetic ganglia exercise an influence upon the secretions and blood supply of the parts to which their efferent branches are distributed. Has Meckel's ganglion any such influence upon the area of its nerve-territory? In none of the reported cases of its surgical removal is mention made of

[1] Op. cit., pp. 216–219.

[2] Baerensprung, Mougeot, op. cit., p. 68. Schiff, op. cit., p. 121.

any effect produced upon the secretion of the nasal mucous membrane, nor was there any increase or diminution of this secretion following Prevost's experimental ablations of the ganglion. Electrization, however, did produce a decided effect. "By excitation of this ganglion I have always obtained in the corresponding nasal fossa an abundant secretion of a serous transparent mucus resembling that of coryza. This flow is accompanied by a marked elevation of temperature in the same fossa; such exaggerated nasal secretion and elevation of temperature are not produced by the electrization of the central extremity of the great sympathetic, and depend consequently upon the ganglion."[1]

The blood supply of the parts does not seem to have been affected in the reported cases of surgical and experimental removal of the ganglion, and electrical stimulation does not produce any very decided apparent influence, though "the elevation of temperature that follows indicates that the ganglion has some controlling power over the circulation" through the branches of the internal maxillary artery.

But whether the ganglion is in its nature and office allied to the sympathetic or the spinal ganglia, does it, in either case, because "composed of gray matter, play an important part as a generator of nervous power, of which, like a galvanic battery, it affords a continuous supply;" *i. e.*, such power as will add to and intensify "morbid nervous sensibility?" It is not always present, hence is not an essential part of the sensory nervous system. The amount of gray matter in it is not constant, it being in different individuals found "of all shades of colour from deep gray to almost the whiteness of ordinary nerve tubes;" its generating or reinforcing power, therefore, if it has such, must vary within wide limits. Does either a spinal or sympathetic ganglion, containing as it does gray matter, and in connection with sensitive fibres, intensify sensitive impressions transmitted through it to the brain? It has been proved that these sensitive fibres bear solely a relation of vicinity to the gray ganglionic cellules, only sympathetic or trophic fibres arising directly from them. An inflammatory irritation passing from a ganglion to sensitive fibres traversing it may cause, as Mougeot suggests, the neuralgia that at times accompanies herpes zoster, and "does not precisely correspond with the eruption in its course and duration;" but it cannot legitimately be inferred from this that the ganglion adds to the force of sensations originating beyond it, and conducted by nerves passing through it. Johnstone[2] a hundred years ago declared that the influence upon such impressions so transmitted was one of *restraint*, rendering the sensibility of parts to which the nerves are distributed "confused and indeterminate."

The purely anatomico-mechanical theory, that ganglia are but places

[1] Prevost, op. cit., p. 228.

[2] Philosophical Transactions, 1767.

where afferent nerves are divided up and their fibres recombined,[1] does not support the "re-enforcing battery" idea, nor in truth does the "little subsidiary brain" theory,[2] for it is an opposing and reflecting influence that the "little brains" exert. Johnstone thought that being in relation solely to parts not under the control of the will, the sympathetic ganglia intercepted the determinations of the will; and Bichat saw in them the means by which was secured the independence that he claimed for the nervous system of organic life. Reil regarded them as separators or isolators, "preventing ordinarily the transmission of feeble impressions, allowing to pass only those of much intensity."[3] Says Bock,[4] "the sensitive fibres only upon very great excitation or irritation conduct beyond the border of the ganglion to the brain or spinal cord from which they went out."

The "cut off" theory, whether true or not, and very probably it is not a correct explanation of the ganglion-office, is directly opposed to the idea of any ganglionic exaggeration of abnormal peripheric sensibility.

There is an opposing action of the cerebro-spinal and sympathetic nerves upon the circulation, that takes place, it is highly probable, through the medium of the ganglion cells;[5] and there is a "reflex, suspending, or paralyzing" action of the cerebro-spinal system upon movements of parts under control of the sympathetic system, that seems to be intimately connected with the presence of ganglia. "Always when excitation of any nerve produces an arrest of movement, there are found ganglion nerve-corpuscles along the course of the fibres that transmit the excitation; on the contrary, when the nerve fibre does not present any nerve-corpuscle along its course between the point of excitation and its termination the effect of an irritation is always motor."[6] Ganglia, "occur where they may, are organs of reflexion" (Bock),[7] and convert centripetal into centrifugal nerve influence, but it is "motor impulses that are put in action," and this reflex power like that of the spinal cord is independent of consciousness.

There is a trophic action of spinal ganglia, which "oppose, so to speak, an insurmountable barrier to the progressive march of alterations of the posterior roots." In cases of sclerosis of the anterior columns of the cord "the atrophy affects the motor fibres from the cord to the periphery," yet when the posterior columns are attacked, "the atrophy is arrested at the ganglia."[8] A similar trophic action we have already seen to be exercised by the sympathetic ganglia upon sympathetic nerves.

[1] Advocated by (among others) Meckel, Zinn, Scarpa, Valentin, Boyer, Calmeil, Swan, and in part by Bock.

[2] Held by (among others) Johnstone, Winslow, Bichat, Reil, and Wutzer.

[3] Longet, Syst. Nerv., tome ii. p. 567.

[4] Op. cit., p. 593.

[5] Edes, op. cit., p. 51.

[6] Longet, Phys. cit., tome iii. p. 619.

[7] So too Cayrade, in his Prize Essay, considers sympathetic ganglia as centres of reflex actions.

[8] Vulpian, Arch. de Physiol, 1868, p. 142.

The gray substance of ganglia, then, has been thought to have an isolating, an opposing, an inhibitory, a reflecting, a trophic power; but what physiologist has assigned to it an intensifying action upon sensations conducted through or rather along beside it. Very possibly the term "little brain," applied to a ganglion, has had much to do with giving plausibility to the idea that it is the "great brain" in miniature.

If Meckel's ganglion exercised the exaggerating influence claimed for it, in the great majority of neuralgias of the second branch (as the starting point of the morbid sensibility if peripherically local is in the distributed filaments of the infra-orbital nerve), the sensibility would have to be carried centrally along the infra-orbital fibres to the brain, reflected outwards along the spheno-palatine nerve to the ganglion, be furnished with the newly-generated nervous power, and then sent back to the centre of consciousness of "accumulated morbid nervous sensibility." Or perhaps somewhat of this circuit might be omitted, and the sensibility be transferred by induction from infra-orbital to spheno-palatine fibres in the extra-cranial common trunk, then to pass to the ganglion to be re-enforced and sent to the brain!

If Meckel's ganglion does not exert the claimed exaggerating influence, and if as Alcock[1] maintains (and there is good anatomical ground for him to rest upon), it does not belong to the fifth pair, but is merely connected with it, in what respect can it be considered the "key of the operation," or of what advantage can it be to remove or isolate it, except in cases of neuralgia, resulting from disease of or pressure upon the nerve fibres in the palatine canals, or the nasal and palatine mucous membranes; and in these cases only because it is so connected with the sensitive trunk of the nerve fibres, that section of the latter must necessarily separate it from the encephalon so far as its sensitive root is concerned.

The exsection of the superior maxillary nerve back to the foramen rotundum, in what cases is it to be thought of, and how much benefit is to be expected from it? No one would perform it in a very recent case of neuralgia, or for the relief of a case of any moderate severity. It is only when the disease is present in most aggravated form, particularly when of the epileptiform variety, attended with horrible suffering, and having existed long enough to have proved the partial nature of the relief afforded by medication, that one would seem to have warrant for the performance of the "Carnochan operation," an operation formidable in appearance and by no means devoid of danger, notwithstanding Podrazki's assertion that it is "dangerless." The severe hemorrhage that has more than once resulted from the unavoidable wounding of the internal maxillary artery and its branches has very seriously compromised life, though a fatal result has not as yet been attributed to the operation. But the cases in which

[1] Cycl. Anat. and Phys., vol. ii. p. 285.

alone the performance of the operation would seem to be justifiable, are the very ones in which from the cause of the neuralgia there is little or no prospect of any other than very temporary relief being secured. If it was local disease of the infra-orbital nerve or its branches that was the *fons et origo mali*, there would be good reason for the exsection of the nerve from before its entrance into the infra-orbital canal. But notwithstanding the enlarged and congested nerve trunks that have at times been removed, in at least the great majority of cases the real cause of the neuralgia is either constitutional or a central lesion. There are too many cases on record of intra-cranial lesions revealed upon autopsy, too many cases of the utter failure of all local surgical or medical treatment to permit any one to believe that it is solely to nerve changes in the bony canals of the face, or peripheral, that neuralgia of the second branch of the fifth pair is due. The clinical history of several of the reported exsections, shows that the real trouble, if not primarily located behind the place of section, was so at the time of the operation, or very soon became so, for in these cases the pain that early returned was felt in the peripheric terminations of the first and third branches of the fifth pair. Anstie[1] has maintained that "in *all* cases of neuralgia there is either atrophy or a tendency to it in the posterior or sensory root of the painful nerve, or in the central gray matter with which it comes in closest connection." Trousseau[2] has admitted that the neuralgia may be of either centric origin or consequent upon "lesion of the periphery of the nerve-trunk, or of some portion of it."

But whether the disease for the cure of which the operation is performed is of central or peripheral origin, is a question of little importance, if it can be shown that permanent relief may be expected from the exsection of the superior maxillary trunk back to the foramen rotundum. But if it is a fact that the relief afforded by it is only temporary, in a considerable proportion of cases of not longer duration than the intermissions secured by other and less formidable operations, or by medication, then it becomes a serious question if the "Carnochan operation" is not an "act of desperation," to which recourse should be had hardly sooner than to the division of the sympathetic in the neck, that Charles Bell[3] wished could be performed with safety, believing it would relieve the neuralgia under consideration. What is the record?

1. Carnochan.[4] "Entirely free from neuralgic pain" at date of report, *fourteen months* after operation.

2. Carnochan.[5] "Free from pain" *two months* after operation.

3. Carnochan.[6] "Progressing favourably" *twenty-eight days* after operation.

[1] Reynold's System of Medicine, vol. ii. p. 742.
[2] Clinique Médicale, 1865, t. ii. p. 308.
[3] Bell on Nerves, Washington, 1833, p. 193.
[4] Am. Journ. Med. Sci., Jan. 1858. [5] Ibid. [6] Ibid.

4. Weinlechner.[1] "Result *dubious.*"

5. Nussbaum.[2] "Pain had entirely ceased up to time of publication," *several months* after the operation.

6. Wagner.[3] "Recurrence of pain after *three months.*"

7. Schuppert.[4] "The pain returned, and before I finally succeeded in relieving the sufferer permanently I performed several other operations, tying the carotid artery and resecting the facial nerve at the foramen styloideum. It is now over one year since I performed the latter operation, and the man has never since been afflicted with the slightest pain."

8. Schuppert.[5] "After the lapse of *several years* no return of the pain has taken place."

9. Billroth.[6] Pain recurred in about *six weeks.*

10. Blackman.[7] Pain returned in *sixteen months.* At times as severe as before operation.

11. Mussey.[8] "While relieving greatly, it did not release me from suffering, until a section of the inferior dental nerve was taken out. After this for quite four months I enjoyed perfect immunity from pain. The pain returned again, and has been constant ever since."[9] The second operation was performed three and a half months after the removal of Meckel's ganglion.[10]

12. Podrazki.[11] Pain *very soon* felt in the supra-orbital branches. Supra-orbital trunk exsected in its course along the upper part of the orbit, *eleven days* after first operation. Pain had not returned *fourteen days* later.

13. Foote.[12] Pain returned in *three months.* As yet of moderate severity.

Whole No. of operations, ...	13
" " in which pain is known to have recurred, . .	7
Of these *seven* the return was—	
at time not stated (No. 7), ...	1
within *one month* (No. 12), ...	1
within *two months* (No. 9), ...	1
in *three months* (Nos. 6, 13), ...	2
in *eight months* (No. 11), ...	1
in *sixteen months* (No. 10), ...	1

[1] Dr. Schuppert, quoted by Dr. Blackman, Am. Journ. Med. Sci., July, 1869.
[2] Ibid.
[3] Schmidt's Jahrbücher, B. 146, p. 64 *et seq.*
[4] Private letter from Dr. Schuppert. June 1, 1870.
[5] Private letter referred to. [6] Berlin. Klin. Wochenschrift, No. 18, 1868.
[7] Am. Journ. Med. Sci., July, 1869.
[8] Cincinnati Lancet and Observer, Aug. 1869.
[9] Private letter from patient, July 23, 1870.
[10] Cin. Lanc. and Obs., *loc cit.* [11] Wien. Med. Wochenschrift, 103, 4, 1869.
[12] Unreported. Operation performed at Cincinnati Hospital, Feb. 1870.

Of the *six* in which return of pain has not been reported, the history is known for—

"*several years*" (No. 8),	1
"*several months*" (No. 5),	1
fourteen months (No. 1),	1
two months (No. 2),	1
twenty-eight days (No. 3),	1
The result was at time of report "dubious" in (No. 4)	1

Granting that in all the six cases in which we have no knowledge of return of pain, there was no such return, the operations were successes, and the neuralgia was in each *permanently* relieved by the exsection of the superior maxillary nerve back to the foramen rotundum; yet in at least fifty per cent. of the operations the freedom from pain afforded did not continue a year and a half. It may with propriety be supposed that the percentage of failures much exceeds the fifty per cent. just stated. In accepting as successful cases, all in which the result of the operation has not been fully given, we cannot certainly be accused of a want of liberality. Is a few months' freedom from pain to be considered indicative of the success of the operation, and is this operation the only means by which such freedom has been or can be secured? In Stromeyer's opinion "fourteen months is no success;" and there are numerous cases on record of prolonged relief secured by medical treatment, and by section of the nerve in the infra-orbital canal, or just external to it. For example, Fothergill reports[1] (and reference is made to his case not so much because of the length of time as because of the connection that his name has with trigeminal neuralgia) at least a year's relief secured in a "most obstinate" case by the persistent use of the "ext. hemlock." Again, Wagner[2] secured not less than fourteen months' relief in at least eight cases by excising portions of the infra-orbital nerve, varying from eleven to eighteen and a half lines in length; in five of these eight the relief being for at least two and a quarter years. Patruban by excising three-quarters of an inch of the nerve in the infra-orbital canal, procured fifteen months' relief for the patient upon whom Podrazki afterwards operated (No. 12 above).

If surgical interference seems necessary, infra-orbital neurotomy ought to precede deep section of the superior maxillary trunk. When, as in Podrazki's case, pain returns again and again in spite of the various operations performed, an intra-cranial or constitutional cause of the neuralgia may be accepted, and a recurrence of pain must be expected as soon as the patient recovers from the shock of the operation, and the recognized temporary palliative influence of hemorrhage has passed off. But "neurotomy is not applicable to certain neuralgias of cerebral origin, such as those of which Trousseau has given so good a description under the name of 'Epi-

[1] Elliott's Fothergill's Works, 1782, p. 436.
[2] Schmidt's Jahrbücher, B. 146, p. 64 *et seq.*

leptiform Neuralgia;' nor should it be practised if the neuralgia depends upon constitutional troubles, such as rheumatism, syphilis, and the like."[1]

It is in just those cases, however, that are of intra-cranial origin or of the epileptiform variety, that neurotomy after the method of Carnochan will be thought of; for it is such cases that resist other less violent treatment, and such in which *all* curative measures will very probably, Trousseau says very certainly, fail. If the "Carnochan operation" has been performed, and the pain has returned, surgical interference, so far as the second branch of the fifth pair is concerned, has reached its utmost limit. The other trigeminal trunks and the portio dura at its point of emergence may be divided (Dr. Schuppert's case shows with some hope of producing permanent relief), but the superior maxillary trunk has been removed as far back as it can be reached with the knife. Recourse then must be had to electricity and narcotics, and by one or both considerably protracted relief may often be obtained.[2] As experience has shown that similar relief may frequently be secured by the same means without any precedent operation, the latter should be performed, if ever, only after the most thorough trial of every other recognized means of treatment has failed to secure relief; and when the superior maxillary trunk is exsected back to the foramen rotundum, the "removal of Meckel's ganglion or its insulation from the encephalon" cannot on either anatomical or physiological grounds be considered of importance, much less the "key of the operation."

CINCINNATI, July, 1870.

ART. V.—*Sequel of a Case of Exsection of the Trunk of the Inferior Dental Nerve, together with the Second Branch of the Fifth Pair of Nerves beyond Meckel's Ganglion, for severe Facial Neuralgia.* By GEO. C. BLACKMAN, M. D., Professor of Surgery in the Medical College of Ohio.

I REPORTED in the July number for last year of this Journal, the case of Mrs. S. J. M., in which I had exsected, Jan. 7th, 1868, the inferior dental nerve, as well as the second branch of the fifth pair beyond Meckel's ganglion. These operations were performed—an interval of one week between them—at my clinic, at the Samaritan Hospital. Notwithstanding that family afflictions of no ordinary character followed shortly after these operations, she experienced complete relief from her neuralgic

[1] Follin, Traité Element. de Path. Ext., tome ii. p. 241.

[2] As, for example, in the case operated on by Billroth, and reported by Wiesner (No. 9 above).

troubles, which had been of the most terrible nature and of eleven years' duration. It was not until February of the following year that she felt any symptoms of a return. This I alluded to in my former report, which was prepared for publication about sixteen months after the operation. The threatened return yielded to a mild cathartic and to a more rigid observance of the principles of hygiene. I was this day (Aug. 16th) informed by her husband that she remained well—perfectly free from pain—until the latter part of August, 1869, nearly twenty months after the operation. From that period until the present time the paroxysms have increased in severity, until the most enormous doses of morphia administered by hypodermic injection, often fail to give relief. As Mrs. M. resides in the vicinity of the Samaritan Hospital, the resident physicians of that institution, Drs. Hall and Bishop, have kindly relieved me of the trouble otherwise connected with a daily attendance upon the case. I visit her from time to time, and it is truly distressing to witness one of her paroxysms of suffering. Her health is greatly impaired, and she earnestly prays for that relief which cannot be found this side of the grave.

Of four cases in which to my knowledge exsection has been performed by other surgeons in Ohio, but one remains free from pain, and in this case only some three or four months have elapsed since the operation. I am informed by Dr. Carson, of Middletown, that in his case the patient was relieved for one year. I learn from Dr. Wm. H. Mussey that in his case the pain returned shortly after the report of his operation, which, if I mistake not, was published some seven or eight months after its performance. The relief so long afforded by the operation in my own patient has been a cause of gratitude both on her part and that of her husband, as he is a hard-working man, very poor, and can but ill afford to pay for the morphia and other narcotics required to give, as they do, but partial relief.

CINCINNATI, Aug. 16th, 1870.

ART. VI.—*Carbonate of Ammonia in the treatment of Pneumonitis.*

By A. PATTON, M. D., of Vincennes, Indiana.

CARBONATE of Ammonia has long been used in pneumonitis to fulfil certain special indications in the advanced stages of the disease, under the supposition that its value depended upon its stimulant properties, sustaining the vital forces in cases where there was extreme prostration, or aiding expectoration by giving tone and strength to the respiratory organs. But I am convinced that this application of the remedy, in pneumonitis, is far too limited, and that its stimulant properties constitute but a very small proportion of its remedial value.

My attention was first directed to this medicine, as a remedy in all the stages of pneumonitis, during the winter of 1862, when in charge of a large number of cases of the disease, and placed in a situation where it was impossible to procure such medicines as I desired. Ammonia was employed, not upon theoretical considerations, or because it was supposed to be the best remedy, but for the want of a better. Thirteen well-marked and very severe cases of pneumonitis were placed upon carbonate of ammonia from the first day of the attack, and submitted to treatment by this medicine exclusively, with the exception of counter-irritation in several of the cases. In many of the cases there were high febrile excitement, severe pain in the region of the inflamed lung, sputa very tenacious and rust-coloured, and crepitant râle distinct in every case, with more or less severe dyspnœa in ten of the cases. In two double pneumonitis existed.

The effect of the medicines was most carefully observed both by myself and assistant, and to my agreeable surprise I observed that, instead of increasing the febrile excitement and heat of surface, both were greatly reduced in a very short time. The pulse became less frequent, but full and strong, the skin moist, and temperature reduced. The pain in the region of the suffering lung was promptly diminished in all the cases. But its most strikingly beneficial effect was upon the character and frequency of the respirations, the dyspnœa being relieved and the respirations rendered easy, full, regular, and decidedly less frequent.

These thirteen cases all recovered, without a single important complication being developed, and without any other medicine being given than ammonia. The average duration of the attacks was only nine days. More satisfactory results could not have been expected. Since that time I have employed the remedy in about three hundred cases, but as many of them were mild, and in quite a number of them other medicines were used, I can only refer to ninety-six well-authenticated ones in which the disease assumed a severe form, and in which no other medicine was employed, and will therefore include only these cases in my statistics. But two of that number died.

Pneumonitis, so far as published statistics can be relied on, is a very fatal disease, the mortality varying, under different modes of treatment, from 1 in $2\frac{1}{2}$ (by Rasori's) to 1 in 32 (by Bennett's).

In England 17 per cent. of the deaths are said to be caused by pneumonia, and in America its death-rate is believed to be still higher.

It is not our purpose on the present occasion to discuss the pathology of pneumonitis, or to point out what we believe to be the *modus operandi* of ammonia in the cure of the disease, but merely to give the results of our clinical experience with this remedy. It will suffice, therefore, to say it relieves, as we conceive, the hyperinosis and thus prevents many of the complications which are likely to occur during the progress of the disease,

and that it diminishes the viscidity of the sputa, promotes expectoration, prevents embolism, and promotes the oxygenation of the blood.

If the remedy be given early in the disease, and regularly, in from five to ten grain doses, every two hours, night and day, it will, in almost every case, so limit the exudation process as not only to greatly lessen the amount of hepatization, but to insure a prompt and rapid absorption of the exudation, and occasionally it will entirely prevent hepatization, and terminate the inflammation by resolution. Upon these points I cannot be mistaken, as my observations have been extensive, and carefully made.

As already stated, I have treated during the last five years ninety-six cases of pneumonitis upon the exclusive ammonia method, using no other medicine excepting that in the congestion stage I sometimes give sixty drops of chloroform to aid reaction. When an aperient is required I give sulph. magnesia. Blisters may be necessary in some cases. No alcoholic agents are allowed in any stage of the disease.

Quinia is sometimes given as a tonic in the advanced stage, and may be required to control malarial influences, but is not advisable in the early stage.

In the three years from 1862, when I first began to employ the remedy, until 1865, I pursued a mixed treatment, sometimes employing alcohol, alternating with ammonia, and some cases were treated with veratrum viride, while others received tart. ant. and calomel. It was during this transition period that I was enabled, by comparative results, and effects of remedies, to determine absolutely in favour of ammonia. I am permitted to add the valuable testimony of some of my professional brethren who have used the medicine at my suggestion.

Dr. Witherspoon, of Bruceville, Ind., states in a letter to me, that "the ammonia treatment suggested by you, and adopted some two years ago, has been decidedly the most effective plan I have used, or seen used." "During the last year I have treated 72 cases of distinct pneumonia, with a loss of two cases."

Dr. Stevens, of Russellville, Illinois, informs me that he has treated during the last three years, 78 cases of pneumonia. "Thirty-five of these cases were treated with carbonate of ammonia—*generally* severe cases with one death. Forty-three were treated with tart. ant., opium, veratrum viride, chlorate potassa, aconite, quinia, alcohol, mostly *mild* cases; out of this number four died.

Dr. Thomas, of Oaktown, Ind., states that "himself and partner treated, in 1869, 73 cases of pneumonitis, with one fatal result; this was a case of scarlatina, followed by pneumonitis. In 1870, up to June 1st, 33 cases, with two fatal results, one an old lady, sick three days before I saw her, and the medicine was not administered regularly; in the second fatal case I was induced to use opium, at the urgent solicitations of others, which I am now convinced was bad practice. The uniform treatment in all these

cases was carbonate of ammonia, blisters when required, and quinia, to control malarious influences."

The reports of these gentlemen are entirely reliable, and altogether, with my cases, make an aggregate number of 309, all severe and well-marked cases of pneumonitis. There is a point to which I wish to direct special attention; it is that the disease assumes its most severe form in the localities where these investigations were made. A very large number of fatal cases occur every winter and spring. In November, 1869, there were three fatal cases of pneumonitis in one family, all strong, vigorous persons, and on Allison Prairie, in Ill., and Shaker Prairie, Ind., the disease prevailed in a very severe form during the last two winters. The report of Dr. Stevens indicates both the extent of the disease in those localities and the comparative results of treatment, as in 43 cases treated by the old methods he lost 4, being 1 in 11; while by the ammonia method he lost only 1 in 35 cases. In the 309 cases reported there were eight deaths, or one in 38 cases.

This exhibits the most favourable results of any method of treatment yet presented to the profession, and I respectfully ask physicians everywhere to give this remedy a fair trial, and report results through the medical journals, for if I have placed too high an estimate on its remedial value, in pneumonitis, the sooner I am convinced of my error the better. I do not claim to be the first to employ this agent in pneumonitis; many others allude to the remedy in the highest praise, but they all advise it as an auxiliary to other measures, and recommend it mainly as a stimulant. True, Dr. Flint advises its employment to prevent heart-clot, and gives it throughout the disease. Dr. Styles employs it in large doses, but at what stage of the disease I am not informed. Many physicians in the West use hydrochlorate of ammonia to promote absorption of the exudation, but for no other object as I understand. Some writers contend that the carbonate of ammonia is decomposed in the stomach, and assumes the form of hydrochlorate, by the action of hydrochloric acid. This may be true but it should not cause us to substitute the hydrochlorate for the carbonate, as I have found the effects of the two preparations very different in pneumonitis, as well as other diseases. In neuralgia the hydrochlorate is a valuable medicine, while the carbonate produces little or no effect. In cases of pneumonitis, where absorption of the exudation is accomplished very slowly, the hydrochlorate may be substituted for the carbonate with advantage, but for this condition I have never found any remedy equal to turpentine; it acts promptly and with great certainty, and is probably the safest and most efficient remedy which can be used for this condition.

ART. VII.—*Remarks on the Treatment of Twenty-one Cases of Infantile Capillary Bronchitis, observed in Alexandria, Virginia, during the winter of* 1869–70. By BEDFORD BROWN, M.D., of Alexandria, Virginia.

DURING the past winter this community was visited by an epidemic catarrhal affection chiefly confined to children, an unusually large proportion of the cases of which at some stage assumed the form of capillary bronchitis. Of the latter, twenty-one cases came under the professional care of the writer.

Treatment.—The leading objects were, in the first instance, to remove mechanical obstruction from mucous exudation in the air tubes; secondly, to abate bronchial inflammation and fever; and thirdly, to prevent a recurrence of mucous collection in sufficient amount to impede respiration, and to sustain the system during the progress of the case. To accomplish the first object, emetics of ipecacuanha were used in every case but one. In a certain proportion of cases it was observed that the high grade of febrile reaction attending the primary or dry stage, diminished materially for a time, soon after the occurrence of copious secretion, denoted by extensive subcrepitant râle, with the super-addition of a new symptom, that of dyspnœa. When this particular stage was taken advantage of, and the mucous accumulation promptly rejected by an emetic, the subsequent progress of the case was mild and favourable. But, on the contrary, when the mucous collection was permitted to remain twenty-four hours or more, continued interruption to the process of arterialization induced permanent engorgement, and the case became protracted and dangerous. When the respiratory sounds were examined just before and then directly after the full operation of an emetic, it was found that the subcrepitant râle had been greatly reduced in extent, and in some instances almost obliterated.

When used freely in the primary or dry stage, the effect in a great measure was to prevent the occurrence of that râle. For instance, in the case of a child of two years old copious emesis removed a very extensive subcrepitant râle, which never returned. In another with sibilant râle throughout the chest, with violent febrile reaction threatening serious capillary affection, a timely emetic prevented effectually the occurrence of the subcrepitant form.

The respiratory obstruction of this disease is due to two co-operating causes, bronchial inflammation and muco-purulent exudation in the air-tubes, but death is not so much the result of the inflammatory process, as of the products of that process. This is equally true as a general rule, of other acute bronchial and pulmonic affections, as membranous croup, pneumonitis, and pleuritis.

Patients rarely die in the simple primary stages of these affections when the inflammatory action is most intense, but generally after exudation has occurred, and exerted its depletive influence on the local and general conditions, and affords a direct mechanical obstacle to respiration. The inflammation of capillary bronchitis will usually pursue a tolerably definite course towards resolution, provided the bronchia are kept sufficiently clear of its products to relieve respiration.

The quantity of this matter daily rejected either by vomiting or cough, including that swallowed and passed through the intestinal canal in bad cases, amounts often to several ounces.

Thus, while inflammation may be in great part subdued, and fever abate, the patient may as certainly succumb to the more transient obstruction, and expire in a state of apnœa. Consequent to this obstruction, a long train of passive venous engorgements is set up, beginning in the lungs, and extending back through the right cavities of the heart, the large veins, brain, and even abdominal organs. In the brain engorgement was manifested by stupor, occasional convulsions, puffed and swollen countenance, distended jugulars, and dilated pupils; and in the abdominal organs, by enlargement of that cavity, tenderness on pressure, and hepatic torpidity. The right cavities of the heart being greatly overdistended, and the left imperfectly supplied with blood, the action of the organ is seriously impaired and laboured, but rapid and deficient in force. As the mechanical obstruction increases the cardiac sounds decline, and the impulse becomes feeble. In very bad cases it was noted that the interval between the two sounds almost if not entirely disappeared. The prompt action of an emetic in this state of affairs was, at any stage of the case, singularly effectual in relieving the pent-up venous blood, and restoring the arterial circulation. The continual presence of muco-pus in deficient expectoration not only sustains engorgement and inflammation, by interrupting arterialization, but may also undergo partial decomposition, becomes acrid, and induces erosion, ulceration of the mucous surfaces, and the formation of minute abscesses, and is usually attended with extremely fetid breath. Occasional emetics will remove this decomposing mass, and prevent local and general mischief.

In a case of an infant who had passed into the collapsed stages from neglect, and was almost pulseless and insensible, the ipecac in four grain doses, given in liberal portions of warm brandy every fifteen minutes, caused active vomiting, copious rejection of mucus, and reaction. In all cases where fever and inflammation continued after the operation of an emetic, the ipecacuanha, given at intervals in quantities not sufficient either to nauseate or vomit, was found the most effectual means of reducing the latter condition, without impairing the vital energies, while it gradually diminished morbid secretion. But children with this affection will often tolerate large quantities of this drug for many days without nausea, and

reap the full benefits as an alterative on the local disease. This tolerance will be found to depend very much on the degree of cerebral and portal congestion. Thus, cases with cerebral congestion and much stupor, and large tumid abdomen, tolerated as much as five grains every two or three hours, for two or three days, with decided benefit. Given in this way the ipecac neither produces nor leaves permanent gastric derangement, but rather prepares the digestive organs for an early resumption of their proper offices. In certain cases with very irritable stomach, very minute doses proved anti-emetic and corrective of gastric disorder.

In that dangerous class of cases attended with deficient or suppressed cough, and where the prostration was such as to forbid the too frequent repetition of emetics, ipecac in minute portions, combined with quinia and alcoholic stimulants, proved the best means of stimulating the paralyzed and dilated bronchia to throw off their contents and of averting apnœa. The sulphate of quinia in combination with the ipecac was used in about two thirds of the cases treated. It was found to exert a threefold influence: one as a sedative on that inordinate disturbance of the nervous system observed in the form of excessive restlessness, and delirium; secondly, on febrile action whether remittent or continued in type as a febrifuge; and thirdly, on that unbalanced state of the circulation already alluded to, and witnessed in the overloaded venous system and deficient arterial circulation characterized by cool extremities, livid complexion, and mental stupor, as an active tonic, and regulating agent on the disordered circulatory system. It was also observed that the febrile action yielded more readily with the quinia than without it. In several instances where fever had obstinately continued for many days, it was added to the treatment with decided advantage. When the type of fever was active and continued, the effect of the quinia and ipecac was to convert it into a remittent form, then to induce distinct intermissions, and finally entire subsidence. In certain cases after a partial reduction of inflammatory action, the system seemed prone to pass into a state of obstinate and habitual febrile excitement of a remittent form, which reacted injuriously on the local affection. For this peculiar condition, the quinia was a happy and efficient substitute, for antiphlogistic measures.

Expectorants.—Experience in the use of either anodyne or stimulating expectorants was not favourable. In all the bad cases treated, cough and expectoration were either absent for a time, very slight, or insufficient to relieve respiration. These symptoms generally bore certain definite relations to the state of the nervous centres, the degree of corporeal temperature, and the condition of cardiac force. Thus, a decline in mental or nervous sensibility, from any cause, transient or permanent, impaired both material reduction of temperature, or loss of cardiac force, exerted a similar effect. The presence of venous blood in the left cavities of the heart, and arterial circulation, by toxæmic action on the nervous system,

tended effectually to suppress both cough and expectoration. When this tendency existed, the more stimulant expectorants failed to correct it, but those remedies which aroused the energy of the nervous and reflex functions, and the contractile powers of the bronchia, were the most efficient. For this purpose, warmth to the surface, quinia and brandy in addition to the ipecacuanha in minute doses, rarely failed to give prompt relief. In this way the progress of infantile capillary bronchitis is constantly subject to sudden and extreme changes, which are not so much due to variations in the character of the inflammatory action, as to the influence of the shifting states of the nervous system, either from morbid, or other causes over the reflex functions of respiration, and the expulsive capacity of the air-tubes. The intimate association between the brain, medulla, and lungs, is often interrupted by the slightest causes in the delicate constitutions of children, which are productive of dangerous suppression of cough and expectoration. Thus, any neglect in supplying proper nutriment, or artificial heat when necessary, excessive catharsis, even mild anodynes, or moderate depletion, by acting injurously on the nervous system, and heat generating powers, tended to produce this result.

In every case with a single exception, cataplasms combining warmth and moisture in a high degree, regardless of the state of temperature, were applied constantly to and around the chest, and over the abdomen when enlarged and distended. They were among the most efficient means of promoting expectoration and alleviating the painfulness of cough. As stimulants of vital action in enfeebled circulation and embarrassed action of the heart, they were valuable, and by promoting the activity of the cutaneous circulation, they afforded great relief to internal congestion, cerebral and pulmonic oppression. When febrile reaction was high they constituted the safest, most certain, and efficient sudorifics in our possession.

Occasional moderate cathartics were used, not for depletion, but to prevent constipation and relieve portal engorgement. Of the twenty-one cases, twenty were treated exclusively by the above method, and all recovered. One, treated mainly by expectorants, diffusible stimuli, and counter-irritation, was lost.

ART. VIII.—*The Effects on the Cerebral Circulation of Large Doses of Bromide of Potassium.* By WM. R. WHITEHEAD, M. D., of New York, Physician for Diseases of Women at the North-Western Dispensary, etc.

THAT the bromide of potassium, in moderate doses, should be considered eminently suitable in sthenic cerebral affections would be logically inferred from the experiments of one of the most judicious of observers, M. Martin

Damourrette, who has shown that the action of bromide of potassium produces contraction of the capillaries and subsequently dilatation of these vessels.[1]

At present the therapeutic use of the bromide of potassium is largely predicated upon its supposed property to diminish the supply of blood to the brain, and that irrespective of the dose. This view has been supported by experiments by Dr. Wm. A. Hammond, and possibly by others. He has informed us, in a valuable paper published in the *Psychological Journal* (Jan. 1869), that he "has administered this substance to dogs whose brains he had exposed to view by trephining their skull, and that he has invariably found it to lessen the amount of blood circulating within the cranium, and to produce a shrinking of the brain from this cause." Such experiments apparently accord with the occasional therapeutic effects of this medicine. There are, however, toxic effects of intracranial congestion produced by the bromide of potassium to which possibly attention has not been called in a prominent manner, and such is the object of this brief article. Recently the servant who attends to my office brought to me a small wire mouse-trap containing six mice which had been caught in the basement. I retained them with a view to determine the effects upon them of the subcutaneous injection of carbolic acid. Two of them being subjected to the action of rather a large dose of this substance without appreciably deleterious effect, I reserved them for further experimentation, and proceeded to try the effects of bromide of potassium on the remaining four. The following are the results of experiments on the six mice first caught, and on others subsequently entrapped :—

Expt. 1.—July 16th, 1870. A mouse had fifteen drops of bromide of potassium (twenty grains to a half drachm of water) injected subcutaneously. Bit violently at things within its reach; had tremor, and died almost immediately.

Expt. 2.—Five drops of the same solution were injected subcutaneously into the back of another mouse: Increased activity, frisky, bites at its own tail, and at other things; activity continued for two or three minutes. This mouse's tail was cut to distinguish this animal from the others, and it was turned loose in the cage. Gradually became quiet, and after a minute or two was observed to be dead.

Expt. 3.—Five drops of the same solution were injected into the third mouse: movements active at first, bites at others with vigour; convulsive movements in posterior extremities; death in five minutes.

Expt. 4.—Five drops of same solution injected into fourth mouse: bites at things about it, and at its own tail; gnaws at the throat of first mouse killed so as to draw blood, not apparently to quench thirst, but from an irresistible propensity to bite. Gradually more quiet; death in about five minutes.

Expt. 5.—The two mice which had received injections of carbolic acid had entirely recovered, and were very active. They were decapitated, and the outside coverings of the skull of each removed. There was no intracranial congestion, and the blood which dripped from their necks was bright red. The four mice which had been poisoned with bromide of potassium each had their

[1] Études Expérimentale sur l'action physiologique du bromide de potassium. Par MM. Martin-Damourrette et Pelvet, Bulletin Général de Thérapeutique, pp. 251 and 252, 1867.

heads cut off, and the skin stripped from the cranium. The longitudinal and transverse sinus of each was distended with black blood, and the skull of each was darkly congested. On dividing the skull longitudinally there was an accumulation of dark blood between it and the brain. The blood which dripped from the necks of these mice was black. The degree of congestion varied somewhat, and the brain tissue itself did not, except possibly in one case, seem to offer any appreciable congestion. The peripheral portion of the brain, or rather the pia mater, was markedly congested, and contrasted singularly with that of the two mice which had not been subjected to the poisonous action of bromide of potassium.

Expt. 6.—July 18th, 1870. A mouse caught to-day had five drops of the same solution of bromide of potassium injected into the cellular tissue of the back. Affected like the others by biting at different things; very active, more than before the injection. In two minutes commenced to be quiet: was seized immediately with forceps, dragged from cage, and head cut off with a pair of sharp scissors. Skull not congested but of natural colour. The pia mater was pale. The head of this mouse was cut off before the toxic effects of the bromide of potassium had become manifest.

Expt. 7.—July 20th, 1870. Two mice caught to-day were subjected to the following comparative experiments: One mouse, a full grown and vigorous one, received an injection of five drops of the same solution of bromide of potassium (forty grains to the drachm), which killed it in five minutes. The eyes were projecting, and the palpebral fissure remained dilated; scalp being torn off from the skull, it was darkly congested; marked intracranial congestion, peripheral and affecting the pia mater; blood was black; liver dark and congested; kidneys also congested.

The other mouse, younger and smaller, received an injection of five drops of the same solution. In two minutes, and just before the sedative effect of the drug began to appear, the head of this mouse was cut off. The eyes were not projecting; the palpebral fissure was closed; the blood which dripped from the head was bright red, and not black, as was the case with its mate, and there was no intracranial congestion. Liver very pale, kidneys not congested.

Expt. 8.—Five drops of the same solution were injected into the cellular tissue of the back of an old mouse: during a minute increased activity, then the animal commenced to be unsteady on its legs, turning around and moving about with a slow and staggering gait. On being seized with forceps by the tail and dragged from the cage, was again very active, and tried to bite my hand. Two minutes and a half from the time of the injection the head was cut off. Intracranial congestion very marked; blood venous; pia mater very darkly congested. This mouse was kept twelve or fifteen hours longer in the cage than the others, and without nourishment. The animal came rapidly under the influence of the toxic effects of the bromide of potassium, because in little more than a minute it became staggering in its gait. When seized by the tail with the forceps and drawn from the cage, probably the hope of escape stimulated this mouse to greater activity.

I do not wish to attach undue importance to a few experiments on mice quite easily performed by any one; but there are, however, sometimes, as in this case, physiological straws which may point the way to more complete and extended experimentation.

There is no remedy which deservedly enjoys a higher repute than the bromide of potassium. In sthenic forms of headache, and in a number of conditions intimately associated with uterine complaints this substance is invaluable, and an extended experience of it in these circumstances has thoroughly established my faith in its efficacy. But I am convinced that the bromide of potassium, like many other valuable remedies, is occasionally incautiously used. The indications for its administration would at first

sight appear very plain should the physiological dogma concerning it invariably obtain, namely, that the bromide of potassium diminishes cerebral congestion. It is necessary to add, I think, that this remedy also produces cerebral congestion. The enormous doses which are sometimes given should excite the fear that an opposite effect from that intended might be induced, and that rapidly, especially in view of the experiments which I have adduced.

The gist of this article then is to record my belief that the bromide of potassium should be given only in moderate doses to obtain the full therapeutic effect for the relief of cerebral congestion; that the primary action of this substance is to diminish the amount of blood circulating within the cranium, but that subsequently, and particularly in very large or toxic doses the opposite obtains; in other words, that intracranial congestion is induced. Indeed, I am inclined to believe that the *sedative* effects of the medicine are always attended with more or less cerebral congestion.

Dr. Hammond has not given us a detailed account of his interesting experiments on dogs in the article to which I have already referred, neither has he told us the condition of the cerebral circulation as an *ultimate effect* of the bromide of potassium. Further experimentation is needed to clear up this subject thoroughly, and I know of no one who is more eminently qualified to settle the matter by that mode than the author of the experiments above referred to.

NEW YORK: 23 FIFTH AVENUE, July 25, 1870.

ART. IX.—*On Congenital Phimosis.* By JOHN H. PACKARD, M. D., one of the Surgeons to the Episcopal Hospital, Philadelphia.

PHIMOSIS is defined by Dunglison as "a disease which consists in a preternatural narrowness of the opening of the prepuce, so that it cannot be carried behind the corona glandis." He further says: "This affection is most commonly congenital; sometimes it is accidental, and dependent upon tumefaction of the glans, or of the prepuce, as occurs in syphilis."

But the inquiry—what is the normal prepuce?—if followed out in adults only, is one of some difficulty. We find some men with the glans wholly exposed; others with its anterior portion uncovered, and a large number with a prepuce which forms a complete sheath. Occasionally we meet even with a redundancy of tissue, giving the end of the organ the appearance usual in children. It need hardly be said that part of the difficulty lies in the delicacy of the investigation except where the parts are exposed either in surgical examinations or in the dissecting-room; and in the frequent uncertainty whether operative interference may not at some time have been resorted to, in cases admitting of direct study.

Upon consulting anatomical authors, we find that for the most part they describe the prepuce as covering the glans. Malgaigne,[1] however, says: "Sometimes it (the glans) is habitually covered by the prepuce; sometimes, either by congenital formation, or as the effect of circumcision, it is exposed." And Cruveilhier:[2] "The length of the prepuce varies in different individuals; in some, extremely short, it covers only the posterior half or third of the glans."

In the nude statues by ancient sculptors, whose correct knowledge of anatomy in other respects would seem to warrant citing their authority in this, the prepuce is always represented, so far as I know, as covering the glans.

I have myself recently examined and noted 172 cases, between the ages of 12 and 73 years, and found that—

The glans was covered, in	63
" " partially covered, in	39
" " exposed, in	70
	172

But of these 45 were, or acknowledged themselves to have been, affected with venereal disease of some form or other, and between these two classes, the venereal and the non-venereal, existed the following difference, which, I confess, surprised me not a little by its marked character:—

NON-VENEREAL SUBJECTS.

Covered,	Partially covered,	Exposed,	
42	23	62	= 127

VENEREAL SUBJECTS.

Covered,[3]	Partially covered,	Exposed,	
21	16	8	= 45
			172

I am indebted to Dr. F. F. Maury, of this city, for a statement of the condition noted in 106 cases of adults, treated by him for various venereal diseases, as follows:—

The prepuce was long in	37
It was of medium length, a portion of the glans being exposed, in	58
It was short in	11
	106

(Two of the eleven were Jews, and had been circumcised.)

In children the condition met with is much more uniform. By the kindness of Dr. Brinton I have been permitted to examine 64 boys in the

[1] Anatomie Chirurgicale, tome ii. p. 414.

[2] Anatomie Descriptive, tome ii. p. 745.

[3] I include in this two who had been operated on for phimosis after contracting disease.

wards of the Philadelphia Hospital, and Dr. H. C. Hand, resident physician, has supplied me with 34 additional cases from the same source, making 98.

Of these 98,

The glans was completely covered, in	93
" " uncovered, in	4
" " one-half covered, in	1
	98

Of the 93 in whom the glans was covered,

The prepuce was entirely retractible, in	36
" " partly retractible, in	3
" " entirely non-retractible, in . . .	54
	93

From these cases it appears that the normal, or at least the usual condition in childhood, is that the glans should be covered, and that in more than half the cases (54 to 39 = $58\frac{2}{31}$ per cent.) the orifice of the prepuce is too narrow to allow of its retraction so as to expose the glans.

One word as to the ages of the boys examined. They varied from one week up to 16 years. Of the four in whom the glans was not covered, one was five weeks old, the others 7, 9, and 14 years respectively; there was some reason to doubt whether an operation had not been done on the one nine years old. The one in whom the glans was one-half covered was four years old. It would seem, therefore, as if the conformations as noted were irrespective of exact age.

Now since the rule in adults certainly is that the prepuce, if it covers the glans, is readily retractible, it is obvious that in the process of growth the prepuce becomes relatively larger or widens at its orifice, for if nature did not do this, art would have to be resorted to in order to render coition possible, or to obviate the suffering produced by erections.

Moreover, I have had direct testimony from several reliable sources in regard to this change, the experience of my informants being that, as boys, they could not retract the prepuce, but that at some stage of adolescence they found that this had become possible.

It cannot then be questioned that in many instances congenital phimosis exists without producing any symptoms, and disappears spontaneously at or before the period of puberty. We must even believe that in some cases the change is from complete concealment to entire exposure of the glans, since the former state of things is relatively so much more common in childhood, and the latter in adult age. Indeed several of the men examined by me, in whom the glans was wholly exposed, told me that in childhood it had been covered by the prepuce; others said they could not remember anything about it. Let us now briefly glance at the troubles which may be caused by the infantile condition.

In the first place, urination may be interfered with.

CASE I.—About a year ago I attended a lady in her second confinement; on the second day the nurse called my attention to the fact that the child, a large fine boy, had passed no water, and was quite uneasy. On examination, I found the prepuce very long, and quite incapable of retraction, the orifice being so small as scarcely to admit a fine probe. Warm fomentations to the hypogastrium having failed to give relief, on the third day I performed circumcision, and the bladder instantly emptied itself.

Uneasiness before micturition may be very troublesome.

CASE II.—Several months since I attended a lady with her fourth boy. Two of those previously born had required slitting up of the prepuce, and this one, when a few weeks old, showed great uneasiness before each act of micturition. Finding that the prepuce was a long one, I carefully stretched the edges of the orifice, and by gentle force succeeded in completely exposing the glans. Extensive adhesion, at one point very firm, existed between the two mucous surfaces on the dorsum; this, however, was overcome, and by constant care, and anointing the parts, the recurrence of the difficulty was prevented.

I believe that sometimes, at least, the suffering produced by congenital phimosis is mistaken by mothers and nurses for colic, and that whenever a male infant has frequent attacks of crying without obvious cause, and particularly if they occur about the times of the child wetting the diaper, the prepuce should be carefully examined.

From the accumulation of urine and of smegma beneath the prepuce, active irritation may be set up; authors have even mentioned calculous deposits as met with in this situation.[1]

I have twice had patients under my care who had adhesions between the prepuce and glans, so extensive as to require actual dissection. One was a boy æt. about 10 years, the other a gentleman of 28. It seems to me probable that this condition was in both cases the direct result of irritation of the lining membrane of the long prepuce.

Boys who are the subjects of congenital phimosis begin at a very early age to pull at the prepuce, and this habit, if continued, as it will be unless sedulously counteracted, is very apt to pass into that of masturbation.

Another very troublesome symptom, which, I believe, may be promoted, if not caused, by phimosis, is nocturnal incontinence of urine. Favoring this idea is the fact, developed by Dr. Hewson in a valuable paper on enuresis,[2] that out of 63 cases the prepuce was elongated in 46. It is not stated of any of the 63 that the glans was exposed; masturbation was either confessed to by, or proven of, 17. No other allusion to this point has ever met my eye in print.

Many of the symptoms of stone in the bladder may be caused by phimosis alone. Twice within twelve months I have been called upon to

[1] See Nélaton, Elemens de Pathol. Externe, tome v. p. 659.

[2] Transactions of the College of Physicians of Philadelphia, Am. Journal of the Med. Sciences, Oct. 1858, p. 383.

attend such cases; one of the boys was three and a half years of age, and the other six. In each the only symptom of stone that was wanting was hæmaturia, and both regained perfect health upon the removal of the redundant prepuce.

The question may now be discussed—In what cases of phimosis ought surgical procedures to be adopted?

It seems to me plain that if this condition is noticed during the first few weeks after birth, the manipulations spoken of in Case II. ought to be employed, and will probably obviate the necessity of anything more formidable. If not, and especially if any of the symptoms before detailed are present, circumcision, or at least slitting up or dilatation of the prepuce, should be performed. Holmes[1] says, "Indeed, in any case where it is doubtful whether the prepuce is not too long or too narrow, the operation should be performed;" and gives as the reasons, the risk of uncleanliness, of paraphimosis, of irritation of all kinds, and in later life the danger of venereal infection, as well as of malignant disease.

J. Cooper Forster[2] advises circumcision, "not only to relieve the present symptoms, but also because this operation, by exposing and hardening the glans, and facilitating cleanliness, diminishes the risk in after-life."

Erichsen[3] says: "I think that all cases of congenital phimosis in children should be operated upon, with the view of preserving the health and cleanliness of the parts in after-life."

Nélaton[4] does not speak of congenital phimosis except in reference to severe symptoms induced by it, but he mentions the operation as of slight severity ("*peu grave*").

Gross[5] speaks of phimosis as requiring attention, not only on account of cleanliness and comfort, but lest copulation should be interfered with.

There is therefore no inconsiderable weight of surgical authority in favor of operating in all cases.

On the other hand, Chelius[6] says: "In children this operation is only called for when there is complete closure of the prepuce, or the congenital phimosis is to such degree that it prevents the discharge of the urine."

I would suggest that the true course is between these two extremes, and that here, as elsewhere, every case must be studied by itself. Should any symptoms whatever, either directly or indirectly connected with urination, be presented in a male child, the prepuce should be examined; if it is found to be long, narrow, and non-retractible, measures may be taken to correct this state of things. The tables given above of the results of

[1] Surgical Treatment of Children's Diseases, p. 186. London, 1869.
[2] On the Surgical Diseases of Children. London, 1860, p. 194.
[3] The Science and Art of Surgery, vol. ii. p. 668. London, 1869.
[4] Op. cit., tome v. p. 657 et seq.
[5] System of Surgery, vol. ii. p. 814, 1866.
[6] System of Surgery, by South. American edition, vol. iii. p. 55.

my own and Dr. Maury's examinations, as well as facts previously known, would seem to show the importance of exposure of the glans as a preventive of venereal disease; but whether it is justifiable to look so far into the future and provide immunity against the results of impure conduct, is perhaps a question for a moralist rather than for a surgeon.

We have, lastly, to consider the mode of dealing with such cases as require operation. Manipulation, as before remarked, will often answer every purpose. To aid in its performance, expanding forceps have been devised, to be introduced between the glans and prepuce with the blades closed, when, by bringing the handles together, the blades are opened to a degree regulated by a small screw near the joint, and the orifice of the foreskin is forcibly widened.[1]

Mere slitting up of the foreskin upon a grooved director, carefully inserted beneath it along the dorsum of the glans, in the median line, is the simplest plan, and perfectly effectual; and although for a long time the flaps thus left are very unsightly, they are rounded off by absorption in the course of time, and before puberty the organ becomes symmetrical.

Dr. M. H. Henry, of New York,[2] proposes the use of a director having its groove filled with lead, in which the point of the bistoury may be securely engaged. Various other instruments, scissors, knives, forceps, &c., have been at different times devised for the greater readiness and safety of performing this little operation.

I am permitted by Dr. Hays to mention here a procedure which was adopted by him in the case of an adult, and which might be found equally successful in the young subject. A gentleman contemplating marriage had a non-retractile prepuce, and wished to have it operated on by Dr. H. at his office and not at his own house. Dr. Hays drew back the prepuce as far as possible; introduced the probe-pointed blade of a pair of scissors between the glans and prepuce; nicked the dorsal edge of the latter, and continuing to draw back the prepuce, he extended the incision in the mucous membrane as that part became exposed, until the prepuce was entirely retracted and the glans uncovered. A rag anointed with cerate was then wrapped around the glans, which, by its bulk, prevented primary union of the wound. The prepuce was then replaced as the most convenient mode of keeping the dressing in place, for the patient insisted upon attending to his business. He had no subsequent trouble.

To obviate even the temporary deformity, before spoken of, the flaps may be cut away with scissors; or, which is a better plan, and the one I always adopt, the redundant tissue may be engaged in the cleft handle of a director, and sliced away in front of it; an additional slit being made

[1] Cruise, Dublin Quarterly Journal of Medicine, November, 1869.

[2] American Journal of Syphilography and Dermatology, April, 1870.

along the dorsal portion if the glans is not wholly freed by this first cut. Severe hemorrhage is rarely met with, but if it does occur, it must be controlled by fine ligatures.

The sutures recommended by some authors to keep the mucous membrane and the skin accurately adapted, do not seem to me to be necessary, although they are easily applied while the child is in a state of anæsthesia, and their subsequent removal may be accomplished without any pain worth speaking of. Cold water is the best dressing to apply to the parts.

In conclusion, I would say that in cases of phimosis in the adult, when chancroids exist beneath the prepuce, I never hesitate to slit it up. The extension of the specific ulceration may be prevented almost wholly, and even if it could not, this disadvantage would be more than counterbalanced by the opportunity given for direct application of remedies to every part of the diseased surface.

1415 SPRUCE STREET, August 24, 1870.

ART. X.—*Prognosis in Mental Diseases.* By I. RAY, M.D., of Philadelphia.

IT will hardly be questioned, I think, that notwithstanding the large contributions to our knowledge of insanity that have been made of late years, our prognosis in that disease is still singularly uncertain. A striking proof of it is that in most of the formal treatises no special reference is made to it whatever, while in the few others a page or two comprises all that the author is prepared to offer. Even such a close and extensive observer as Esquirol found a couple of pages sufficient for all the information he had to impart. When we consider these things in connection with the frequency of the disease and the abundant opportunities for observing it, they would seem to be not very creditable to the sagacity or accuracy of the observer. This may be so in some degree, but the inherent difficulty of the subject will sufficiently account for much of the imperfection that now attends our prognosis. We are without those means for revealing to the senses the pathological condition of the organ affected, which aid us so effectually in the investigation of other diseases. Incased in its bony envelope, no arts of percussion or auscultation can make it give up its secrets to the touch or the ear, and no ingenious device of electromagnetism will show the derangements of its circulation. Indeed, in the present state of our knowledge respecting the intimate structure of the brain, and especially of the changes it undergoes when affected by disease or tendencies to disease, even more efficient helps than these would avail us

but little. Nor could we expect much from the most elaborate exposition of numerical results, for they are wanting in the necessary precision and simplicity. The attempts of this kind already made in what are called the statistics of insanity have signally failed to elicit much real information, though confined to a coarser and more appreciable order of facts. We are obliged to rely, therefore, on those incidents that press on our notice, trusting to thorough observation and a happy sagacity to learn as far as possible their true significance. Those general impressions which such experience leaves, deficient as they may be in exactness and demonstrable certainty, are, nevertheless, precious sources of information, worthy of being preserved in durable shape. Let every one contribute his share to the common stock, and in the fulness of time we may have the materials of a reliable prognosis in mental diseases. With this end in view, I propose to communicate the results of my own particular experience, excepting such as obviously confirm the prevalent and generally-accepted belief.

In any disease the chances of recovery are learned from simple observation of results, our present object being to ascertain the grounds on which we may predict a favourable or an unfavourable termination. In the outset, then, we are obliged to admit that in a very large proportion of cases we are unable to perceive any such grounds. Circumstances that seem to promise the strongest resistance to the triumph of disease may not prevent the worst result, while in many a case recovery occurs where everything seemed to be against the patient. Thus our conclusions are rendered negative rather than positive. Instead of saying that certain incidents or conditions indicate recovery, we are too often obliged to content ourselves with saying that this or that incident or condition may not prevent it. But negative results are better than none, and this must be my excuse if in many instances I say what a thing does not, rather than what it does, signify.

It is now generally agreed that in a case of insanity occurring after a brief incubation, the bodily health tolerably good, and the constitutional powers unimpaired by previous disease or improper habits, the chances are in favour of recovery; in other words, that more than fifty per cent. of such cases recover. And this, I believe, is about as exact a statement of the proportion of recoveries as can well be made. The number discharged from our hospitals as recovered, ranges, one year with another, from forty to fifty per cent. of the whole number discharged. But it must be considered that, in all probability, if some of these had been retained a little longer, it would have appeared that the apparent recovery was only a temporary improvement. On the other hand, these are more than offset by those who would have been discharged as recovered, had they been suffered to remain sufficiently long. Some twenty-five or thirty years ago, we often saw a much larger proportion of recoveries reported than this, and that, too, without mistake or deception in the matter. Unquestion-

ably the physical condition of the inmates of our hospitals was better at that period than it is now. Of late years the number of those whose native vigour has been sapped by excesses of one kind or another, and who are suffering from cerebral lesions not supposed to exist in proper insanity, has been steadily increasing. These cases add to the mortality, and diminish the proportion of recoveries. Taking the curability of insanity as here estimated, let us see how it is affected by certain conditions, incidents, or symptoms.

An attack which is developed within a few weeks is far more likely to recover than one that had its beginning years before, and has been advancing by slow but steady progress. In the latter case the organic change, though slight, seems to have become firmly fixed, and to have acquired the strength of a congenital defect; while in the former the restorative energies of nature are called into exercise promptly, as if by the very suddenness and violence of the morbid movement. Some have regarded this circumstance as so favourable, that they ventured to predict recovery, where it exists, as confidently as they would in a fit of hysteria. This, surely, is not warranted by the results of observation, which show that many a patient whose conditions, apparently, are as favourable as possible for recovery, passes into the chronic stage, and becomes incurable. This is one of the problems that have defied every attempt at solution, and mark the narrow limits of our knowledge. Of course it is to be understood that our diagnosis is correct—that we do not mistake for mania some other cerebral affection. It is well known that some of them very strongly resemble the acute stage of mania, and especially is it so with that form of disease first described by the late Dr. Bell,[1] of the McLean Asylum, and which, for that reason, I took the liberty of designating by his name. Notwithstanding his clear and copious description, cases not unfrequently occur in regard to which one is obliged for a day or two to suspend judgment, and be governed at last, perhaps, less by any definite condition or symptoms than by that *ensemble* of appearances which, however satisfactory to the observer himself, does not admit of description. As this form of disease is pre-eminently dangerous to life, we must refrain from giving a favourable prognosis until quite sure that we are not dealing with some other form of cerebral disease than that of acute mania. The same caution is necessary in regard to that other form of mental disease, so closely resembling mania, which has become so common in our hospitals for the insane. I refer to what used to be called, universally, general paralysis, but which has recently received the better name of paresis. Physicians in private practice, not very familiar with the aspects of mental disease, are very liable to confound this with mania, and, because the

[1] American Journal of Insanity, iv. 97.

mental derangement is something less than that of raving, to offer a favourable prognosis.

It is a common impression that hereditary insanity is less curable than that which is not so. That there is some ground for this impression is not to be denied, but the better notions that have begun to prevail respecting this character of insanity oblige us to receive it with many grains of allowance. Where the hereditary transmission is witnessed only in the production of an attack, the mental manifestations not having been otherwise distinguished by singularity, or deviations from the conventional standard, I have seen no reason to believe that it diminishes the curability of the attack. Not so in that large class of cases where the transmitted agency has profoundly affected the normal constitution of the mind, producing, in the highest degree, what has been aptly termed the insane temperament, and, in a less degree, the various shades of eccentricity. Here the full development of unmistakable, overt insanity is but the last stage of an abnormal process which began with the beginning of life. Entire recovery is out of the question, and the best event we can expect is only a temporary remission—an abatement of the severity of the disordered manifestations. Those who have had no such antecedents—whose conduct and conversation have evinced no deviations from the ordinary standards of correctness—quite as readily recover as others. They are more liable, no doubt, to recurrent attacks, because the hereditary vice is an additional cause of disturbance. Allow me to say, in passing, that whoever, guided by the spirit of a true philosophy and the light of a broad and exact observation, shall thoroughly investigate the hereditary transmission of cerebral qualities, will make a contribution to our knowledge of insanity more valuable than any single one it has ever received.

Different forms of insanity also differ in point of curability, and this fact must be taken into account in giving our prognosis. To the inexperienced observer, the dull, listless, apathetic aspect of the subject of acute dementia suggests the most dismal prospect; but when it is not the sequel of falls or cerebral lesions, it is really no less curable than acute mania, under a parity of circumstances. Perhaps it is more so. Recovery may be longer delayed—for the most part it probably is—but it is no less certain and complete.

In that form of mental disease called circular insanity, consisting of alternate excitement and depression, separated by an apparently healthy interval, these different periods continuing weeks, months, or years, our prognosis must always be unfavourable. In all my experience I cannot call to mind a single complete recovery after the vicious cycle had been clearly established. Sometimes the transition periods are considerably prolonged, and thus encourage the expectation that the other phases of the disease will never return. Time only is needed to show that such hopes are delusive. Sooner or later the patient becomes excited and

depressed, and so the morbid series is continued. I would not have it understood that a single series of these movements is sufficient to constitute the form of disease in question, because more or less excitement, or more or less depression, accompanies every case of mania. Whatever other trait of the disease is wanting, this is never absent, and in a large proportion of cases both are present, the one succeeding the other. We are not, therefore, to infer too hastily that a periodical manifestation of these conditions in the early stage of the disease, necessarily indicates the presence of circular insanity.

The curability of puerperal mania has been very differently estimated by different writers, in consequence of overlooking the fact that it appears under several very different forms. When the disease occurs shortly after delivery, and is attended with high fever, extreme restlessness and jactitation, and chaotic disturbance of mind, the danger of life is imminent, and by far the larger number of patients die. If they survive, the body and mind generally recover *pari passu*. Dr. William Hunter has very sententiously expressed a similar opinion. "When out of their senses," he says, "attended with fever like paraphrenitis, they will, in all probability, die; but when without fever, it is not fatal." When there is little or no fever, and the mind remains coherent and rational to some extent, there is little danger of death, and we may prognosticate recovery of reason with as much confidence as in any description of mental disease, especially if the vital powers are not seriously impaired by previous ill health or other deteriorating influences. When, on the contrary, the patient has been reduced by hard work, early and frequent childbearing, or disease of one kind or another, the chances of recovery are much diminished. The subjects of puerperal insanity thus characterized are rapidly increasing among us, owing to the greater prevalence of all those incidents that impair the energies of the female constitution, and thus become an efficient agency in the development of puerperal insanity; and the fact should render us cautious how we venture on a prognosis before making a careful investigation of all the antecedents of the case.

Mania accompanied by homicide has been generally regarded, in this country at least, as a very intractable form of disease, but I am inclined to doubt the correctness of the opinion. It probably arose from the fact that when the State hospitals were opened, one after another, a large proportion of the patients received from the jails and poorhouses were of this description, having been kept year after year in those receptacles, on account of their dangerous character, when otherwise they would have been cared for by their friends. These were the cases that had become chronic, and they conveyed no idea of the number of those that had recovered and been discharged from confinement. That the greater part of such patients should pass into the incurable state is not surprising, if we consider the management to which they were subjected. Regarded as

they were with great apprehension, they were very closely confined, often in cages or dark rooms, seldom if ever allowed to go out of doors or even to look upon the face of nature, and, worse than all, exposed to the gaze of idle and thoughtless people whose comments were not much calculated to excite a train of healthy reflections. Still, after making all due allowance for this source of incurability, there are unquestionably some circumstances in these cases well fitted to reduce the proportion of recoveries somewhat below the average. In most of them the homicidal act is the offspring of strong delusions, indicating probably the severest grade of cerebral disorder short of obvious organic lesion. And in those cases where the act was prompted by some sudden impulse, or that confusion and perversion of ideas common in acute mania, it is not improbable that every restorative movement may be repressed by the perpetual consciousness of the terrible deed. Patients of a low grade of intellect seldom become competent to view such acts in the true light, however rational they may be in other respects. They indulge in self-accusation, and wonder they should have been left to do such a thing. It is not strange, therefore, that the sad past, rather than the cheering prospects of the future, should wait on every attempted return of reason, and drive it back into the region of clouds and darkness. Still, there are recoveries in this form of insanity—enough to deter us from giving an unfavourable prognosis in every case.

In pure monomania, the more circumscribed the delusion the smaller is the chance of recovery, and the chance is the smallest in cases that have had a long incubation.

Insanity produced by masturbation does not admit of a hopeful prognosis. In fact, it is generally incurable, chiefly for the reason, probably, that the cause is steadily maintained. When the disease has advanced so far as to involve very deeply the mental powers, and deprive the patient of all self-control, there can be no reasonable hope of recovery; at least, I never saw a case of recovery under such circumstances. On the other hand, if the patient is within the reach of appeals to his higher nature, and is capable of refraining from the pernicious practice, then we may predict recovery with some degree of confidence.

It has long been a well-settled fact that insanity accompanied by epilepsy is completely incurable. It is no less true that all convulsive affections indicate serious disorder and render our prognosis unfavourable. Reason is never restored and death is imminent.

The condition of the menstrual secretion is not without some importance as a ground of prognosis, although in this respect, it has been much misunderstood by physicians not very conversant with insanity. When suppressed they have regarded it as an indispensable part of the treatment to endeavour to restore it, and expected, when nature resumed her rights, to see the mental disorder disappear. They must often have been disappointed, but the idea was too firmly grounded in the prevalent pathology

of the times to be readily abandoned. Unquestionably, the menses are deranged in a majority of cases, and, generally, previous to the development of the attack. There can be no greater mistake, however, than to regard that as a cause of the disease, which is one of its collateral incidents; or one of those results which, though prior in the order of occurrence to any very obvious disturbance of the mind, have, themselves, been preceded by some earlier departure from the normal condition. Hence, it is not uncommon to see the menstrual function restored, without any corresponding improvement of mind; and the converse phenomenon—that of reason restored while the catamenia remain suppressed—is, perhaps, no less common. I would not be understood to deny that a sudden cessation of the menses while flowing, may be an exciting cause of insanity where the predisposition exists. While, therefore, we should be careful not to expect too much from a return of the menses, we may, certainly, regard it as a ground of hope in reserve. Esquirol says that "when the menses are reëstablished without the return of the mental health, it is to be feared that the disease will become incurable." This fear has not been confirmed by my experience. The return of the menses is indicative of improved bodily condition, and for that reason it makes our prognosis so much the more hopeful. It has often appeared to be one of a series of changes ending in complete restoration, though weeks or even months might be occupied in the process. I have seen more ground for Esquirol's opinion, that, so long as the menses remain suppressed, we may cherish the hope of recovery, especially in the earlier periods of womanhood. It must be admitted, however, that in cases of considerable duration it is but a forlorn kind of hope.

I have never been inclined to think that the chances of recovery are much affected by sex, or time of life, except extreme youth and extreme old age. Insanity occurring several years before the time of puberty, as it occasionally does, is not often cured. Most cases end in death or complete imbecility. The etiology of these cases is involved in great obscurity. In the most of those which have met my attention, it was impossible to arrive at any satisfactory conclusions respecting the agency most concerned in producing them. The parents were free from tendencies to cerebral disease or neuropathies, and the patients had met with no fall or blow, nor been afflicted by any serious disease. The character of the disorder would seem to indicate very grave organic changes in the brain, but I am not aware that this conjecture has been verified by autopsy, which, probably, has been seldom made. Of course, I do not include in this form of mental disorder, that moral perversion which sometimes appears about the time of puberty, and is connected, apparently, with the process of sexual evolution. Cases of this kind always recover when this process is fully accomplished.

That form of insanity which passes under the name of senile dementia, of course, is incurable, but it must be borne in mind that old persons are

not exempt from attacks of common mania. I have had no reason to believe that old age is an unfavourable circumstance in such attacks, other things being equal. My impression is that it furnishes its due proportion of recoveries. I hardly need to add that one must be quite sure of his diagnosis before he ventures to prognosticate the issue of the disorder.

In young people, after the age of puberty, the proportion of recoveries is greater than at any subsequent period; and in women it is greater before than after the turn of life.

The turn of life, as well as the restoration of the menses, has been generally regarded, but without sufficient reason, as a promising event in the progress of insanity. They who see the disease on a large scale have little reason to sanction this opinion. In the new order of things which this event inaugurates in the female system, the brain may throw off its morbid condition, and return to its normal state. This event happens just often enough to deter us from previously abandoning all hope from the climacteric period when not too remote.

In cases attended with high excitement, a ground of prognosis may be found in the character of the mental manifestations. When the patient's attention can be arrested, and he is able to understand and to reply to questions with some coherence and correctness, the prognosis is far more favourable, as it regards the chances of his surviving the attack, than when he is abstracted from all outward things, able, scarcely for a moment, to quit his own drifting thoughts, and is entirely absorbed in the chaotic jumble of ideas that possess his mind. This latter form of aberration, whenever it occurs in connection with high maniacal excitement, is an unpromising symptom, because often indicative of the most dangerous kind of cerebral lesion. It is very common, almost universal, in fact, in that form of disease, already alluded to, now so frequent in our hospitals, and passing under the name of maniacal exhaustion, or typhomania, or meningitis, or Bell's disease.

Exaltation, abstractly considered, indicates a more curable form of disease than delusion, or painful apprehensions, unattended with much nervous excitement. Perhaps no form of insanity is more curable than that which is characterized by a brief incubation, and an exaltation of views, feelings, and emotions. Probably it is produced by a smaller departure from the normal condition of the brain, and consequently is more readily cured. Still, simple exaltation is common in chronic insanity. In a large proportion of the old cases in every hospital for the insane, it is impossible to detect a single delusion, or point out a single incident that would be considered in a court of justice as satisfactory evidence of insanity.

In a large proportion of recent cases, the excitement rapidly disappears within the first month, and the patient seems to be completely restored. This seeming restoration departs about as rapidly as it came, for in the course of a few days the patient relapses into his former condition, and

generally recovery is not more speedy than in cases not marked by this kind of remission. This fact should render us cautious how we prognosticate an approaching recovery on the strength of this early improvement. In cases marked by the highest grade of cerebral disturbance, recovery sometimes takes place in this manner, but for the most part, the process of restoration is a slow one, occupying weeks if not months. Delusions vanish, one after another; distrust, suspicion, hostility gradually give way to more cheerful and kindly feeling, and the suggestions of reason struggle long and painfully with those of disease.

We sometimes see, in the early stage of mania, high excitement, and, perhaps, the wildest raving, alternately, at short intervals, with tranquillity and tolerable clearness. This might seem to warrant a less favourable prognosis, from the fact that a similar phase of disease is common in old cases, but the actual event, so far as I have observed, does not justify this view. Although it gives no promise of speedy recovery, yet I have been disposed to regard this kind of change as better than a protracted uniformity of condition.

Depression must be regarded as a less favourable symptom than excitement; that is, the chances of recovery are less in cases characterized by depression than in those characterized by excitement, and the inequality increases the longer these conditions exist. In neither is recovery determined by the degree in which the intellectual powers are affected. Depression, accompanied by coherence and continuity of thought, and regard for the ordinary proprieties of life, is no more curable than when marked by extreme agitation and chaotic confusion of mind. A suicidal disposition, so common in these cases, must render our prognosis less favourable, for the reason, probably, that it indicates a grave cerebral lesion. A little depression is not uncommon even in the stage of convalescence, in cases that have been marked by much excitement. The late Dr. Bell used to say it is almost if not quite universal. It seems as if oscillation, more or less, were a law of the cerebral movement, so that after rising above or falling below the normal grade of activity, it, sooner or later, moves in the opposite direction. This fact should be borne in mind in forming our prognosis.

Among the minor incidents of insanity are a few of considerable value as grounds of prognosis.

Generally, in the recent stage, the insane sleep poorly, and though they may sometimes recover the habit of sleeping soundly without manifest improvement, yet this event can scarcely be expected until the sleep is more sound and continuous than it usually is at first; while, therefore, the patient sleeps badly, we are debarred from expecting recovery soon.

Gaining flesh is a very favourable symptom, provided it be accompanied by some mental improvement. When unaccompanied, *pari passu*, by such improvement, it is generally the precursor of a rapid deterioration of

mind. In all forms of mental disease, involving decided organic lesion, like general paralysis and other cognate affections, a full, florid, robust physique is not uncommon, and should not induce us to render our prognosis less unfavourable. In these subjects there sometimes occurs a rapid loss of flesh, and then it is the precursor of approaching dissolution. In this form of cerebral disease there sometimes occurs, in the early stage, a decided mental improvement, on the strength of which the patient may be released from the hospital. That friends should be deceived by such event is not surprising, but the practised observer places on it no reliance whatever. Let me say, in passing, that there is another phase of these affections well calculated to lead astray the inexperienced observer. Their earliest stage is sometimes marked by an absence of any of those aberrations which are popularly regarded as essential to insanity. All the intellectual processes which imply any effort of attention are performed with their usual correctness. The most careful examination can detect no delusion, nor extravagance, nor singularity of thought; no obliquity, nor perversity of feeling. The mental disorder is confined solely to the perception of the fitness of things, in consequence of which the patient is committing improprieties of conduct of which he seems to be unconscious. He does not defend or explain them, as other patients do, but simply ignores them altogether, or, at the most, gives only a lame and impotent reason. If in business, he engages in some transactions preëminently absurd, for which he can give not even a plausible excuse. While in the hospital, he is constantly transgressing those proprieties of behaviour which are the last to disappear from the demented mind. He is as likely to yield to the calls of nature in places exposed to observation, as anywhere else, and is so heedless of appearances as to go into company with the flaps of his trowsers down. His room is always in confusion. When unobserved, he mars the furniture, tears the carpet, and breaks the plastering, and in the night, when nature calls, he seldom troubles himself to get out of bed. When these delinquencies are charged upon him, he coolly denies them altogether. The mental integrity which appears in his discourse must not lead us to think lightly of his disease, as it inevitably will any one who expects to find insanity always manifested in the conversation—in the views or feelings, as well as the ways and actions.

There is much reason to believe that the grade of intellect is a very important element of prognosis. If accurate statistics on this point were possible, they would show, I am inclined to think, that, *cæteris paribus*, patients with good intellectual endowments recover, in larger proportion, than those less happily constituted. I have no theory on the subject, but all the analogies of physiology seem to warrant the opinion, that the greater the energies of the mind the greater would be its recuperative powers under the stroke of disease. It is certainly a significant fact that in a large proportion of cases, the men of world-wide renown who have

been smitten with mental disease have recovered their reason. Of the Irish insane a remarkably large proportion, it is well known, prove incurable. The few that have recovered under my observation have been, for the most part, superior in point of intellect to the general run of their countrymen. Every one who has had much to do with this class of patients must have observed that, even after recovery, many of them, especially those of the lowest grade, find it difficult, if not impossible, to perceive the true character of the delusions which they entertained in the height of their disorder. They may have regained in all other respects their normal condition, but they never renounce the belief that the events they imagined had a real, objective existence. And if we consider the matter for a moment it could hardly be otherwise. To make the necessary comparisons and allowances, to analyze a confused mass of mental phenomena, to distinguish the subjective from the objective—all this requires an order of intellect and a kind of training very different from theirs. The fact is of a kindred nature, probably, with that of the intractability of the disease in this description of patients, and may both be referred to the general law already alluded to, that the restorative power is proportional to the strength and development of the organ affected. In making up our prognosis, therefore, the intellectual grade of the patient should not be left out of the account.

The general condition of the patient constitutes an important element in the prognosis. Analogy and observation both teach us that, when the attack has been preceded by no serious impairment of the vital energies, the chances of recovery are far greater than under the opposite circumstances. Perhaps no single incident more strongly warrants a more favourable prognosis, than a high condition of the general health. The complete and ready cure of the cerebral affection seems to require that the other organs should be as sound as possible, and radiate only the healthiest influences towards the brain. Besides, it is to be considered that, in many cases—and the number is constantly increasing among us—one of the most efficient agencies in the production of mental disease is that condition of the system which passes under the name of ill-health, consisting, chiefly, of the nervous exhaustion and disturbance that spring from feeble stamina, excessive labour, minor physical ailments, care, anxiety, and disappointment. The mental affection is the last of a series of pathological changes which have been sapping the energies of the constitution; and, consequently, in this connection, it implies almost a fatal draft upon the vital powers. A few of them recover their reason, but by far the greater number linger through a few years of excitement or depression, mingled with delusion, before they pass to their final rest.

ART. XI.—*Localization of Diseased Action in the Osseous System.*

By HARRISON ALLEN, M. D.

THE relations believed to exist between cause and effect, as observed in cases of assumed idiopathic origin, seem to us to be well worthy of investigation. The opinion that in conditions of systemic disturbance, symptoms arise in obedience to the operations of general laws, appears to be well founded. The truth of this may have been conceded long ago, but whether so or not, it has been so rarely pointed out in medical works that we feel warranted in dwelling upon the subject in some detail.

Among the occasional allusions noticed in the writings of practised observers may be mentioned the following:—

The elder Colles[1] definitely asserts, with respect to the effects of age influencing diseased action, that the "periods of life have some concern in the prevalence of disease in one class of bones over another; in very early life, say from the age of seven years to twenty-one, the long bones are mostly affected, while from thirty to thirty-five years of age the flat bones more frequently suffer."

"The various osseous processes for muscular insertion, and the several surfaces of bony contact in the vertical plane of the trunk, are the portions of the skeleton most liable to undergo excessive waste—the former by traction, and the latter by pressure; and they are the portions, consequently, most liable to quantitative errors of nutrition."[2]

Again, apart from the acknowledged aphorism that an organ is most liable to become the seat of disease when "its functional and vascular activity bears the greatest ratio to that of other organs of the body,"[3] it is highly probable that a developmental activity conduces to a similar result; thus, H. Gray[4] found "myeloid tumours occur at an early period of life and within the period in which the cellular forms (characteristic of the growths) form a constituent part of the normal medulla. * * * It is a remarkable circumstance also that in every one of these cases the tumours have taken their origin in the epiphysal ends of the long bones."

Mr. Paget,[5] while apparently mistrusting the value of such reflections, gives proof in the following extract that in his method of research they at times held a place.

"The cases of this singular disease (cartilaginous tumours of the hand) have shown great diversity as to the cause of the tumours, and in their modes and rates of growth; some making progress, some remaining stationary, and I believe it has often happened that at the time of man-

[1] Surgical Lectures, 1845, 316.

[2] Simon's Lectures on Pathology, 1850, p. 88.

[3] Barlow, Guy's Hospital Reports, Series I., vol. vii.

[4] Myeloid and Myelo-Cystic Tumours of Bone, Med.-Chir. Trans., xxxix. 144.

[5] Lectures on Tumours, 1853, 201.

hood all have ceased to grow. * * * It would be easy and as vain as easy, to speculate on the meaning of such a disease as this. I believe no reasonable explanation can yet be given, unless it may be said that these are the results of an exuberant nutrition similar to that which in the embryo may produce supernumerary limbs, but is here more disorderly and less vigorous."

With respect to degrees of vascularity of an organ influencing the form of disease attacking it, Maurice Colles[1] employs the following emphatic language:—

"The degree of vascularity of an organ determines the direction of morbid action. Thus, encephaloid is more frequent than scirrhus in the mamma during its active stage, while scirrhus is oftener seen than encephaloid after that period. Certain vascular organs, such as the testicle and tongue, are rarely, if ever, affected with scirrhus."

Another instance, rather quaint than otherwise, is illustrative of the endeavour to ascertain the causes of localization of diseased action.

Mr. Wilks,[2] in a report of a case of cartilaginous tumour of scapula, says:—

"It may not be uninteresting to observe that during the period in which this tumour was being so rapidly developed on the shoulder, similar structures to those which it contained were being as quickly produced in the fœtal structures in the uterus of the patient, she being at the time pregnant."

For the sake of convenience we propose arranging our subject matter under the following heads:—

(1.) Development and Growth of Bone.
(2.) Vascular Supply of Bone.
(3.) Relations of Bone to Muscle.

(1.) DEVELOPMENT AND GROWTH OF BONE.—*Bones may be said to maintain in their Diseases relations to their Methods of Development and Growth.*

(*a*) The human embryo, in the early stage of development, is divided into two layers—an animal or nervous, and a vegetative or mucous. The latter has a remote connection with the skeleton, save in the region of the face. Here every bone excepting the malar is in contact with a mucous surface. The connection is slight with the inferior maxillary, but decided with the inferior turbinated bones and the ethmoidal scrolls. Indeed, the latter would appear to derive their chief source of nourishment from vessels going primarily to the mucous membrane. Such an arrangement of bones asserts a definite relation with the functions of respiration and

[1] Diagnosis and Treatment of Cancer and the Tumours Analogous to it, 1864, 42.
[2] Guy's Hospital Reports, Third Series, II., 1856, 5.

alimentation, and it might with propriety be said to have a splanchnic significance.[1]

A glance at the diseases of the facial bones would appear to confirm this view of their relations. The nutritive processes within the jaws are largely dependent upon the presence and condition of the teeth. In smallpox, measles, and scarlet fever, diseases affecting the mucous and integumental surfaces, we may have necrosis of the jaw as a sequela. In typhoid fever, in which the lesions are chiefly of the mucous tract, we may find associated parotiditis, and maxillary necrosis as a sequela. Again, the "melting away" of the turbinates in the secondary stage of syphilis follows upon specific inflammation of membrane covering them.

(*b*) In tracing the development of the head we learn that the brain-case sends a vertical prolongation—the frontal process—from its vertex downwards in the median line of face, to terminate on the level of the floor of the nose. Within it originate the nasal and intermaxillary bones, with part of the ascending process of superior maxillary bone. It meets with a horizontal prolongation of the base of the cranium—the nasal septum. The lateral portions of the face, the upper and lower jaws, advance from the sides, to unite with the above to inclose the scrolls of the olfactory capsules, viz., the inferior turbinated bones and the lateral masses of the ethmoid.

We detect in the ethmoidal and vomerine elements a projection of the primordial skull into the region of the face. These pertain, therefore, to the former in their morphic relations, but to the latter in being covered with mucous membrane.

Applying these facts to pathology, we find that in consequence of the distinction of the superior maxillary bone into lateral and median portions, the latter, or inter-maxillary region, may be separated as a sequestrum when necrosis does not involve the former.[2] Necrosis of the upper jaw, when commencing in the alveolar region, rarely crosses the median line. In edentulous skulls it is not unfrequent to see the alveolar ridge of the incisorial portion of the dental arch resisting absorption a longer time than the lateral. With respect to the nasal septum, it is singularly free from disease[3] or deformity. Its chief abnormality is deflection, a result of

[1] "The teeth in the early embryonic conditions are developed from and are dependencies of the mucous membrane of the mouth. * * * * We have strong grounds for the hypothesis that all the bones of the face, which are developed in the walls of the primitive cavity of the mouth which they surround, are in their anatomical and physiological relations splanchnic, connected with digestion or respiration, rather than parts of the endo-skeleton of animal life."—*Wyman, Nervous System of Rana pipiens, Smithsonian Contributions*, 1852, v. 41.

[2] Bryant, Guy's Hosp. Rep., 1869, 238.

[3] C. H. Moore, in Trans. Path. Soc., 1868, xix. 332, narrates the following case of "chondro-facial enchondroma:" Male, aged 22. Tumour of five years' duration. It involved frontal bone and base of nose, and protruded in the median line of face.

the vomer and perpendicular plate of the ethmoid continuing to grow subsequent to the walls of the cavity of the nose becoming fixed.

Heyfelder[1] narrates a case of destruction of nasal septum from a large exostosis, involving the nasal, lachrymal, palatal bones, with the body and nasal processes of both superior maxillaries, the palatine process of the latter bone being preserved.

(*c.*) The bones of the base of the skull, viz., the occipital (excluding the supra-occipital portion), the sphenoid, the temporal (excluding the squamous portion, and styloid process), arise from cartilage. All the portions excluded in the preceding paragraph, the ethmoid bone and vomer, the parietal and frontal, together with the process extending into the face (yielding the nasal and intermaxillary portions of the superior maxillary bone), are derived from membrane.

Disease rarely involves both these regions in the same subject. Should the base of the skull be affected, the vertex is exempt, and *vice versâ*. Ordinary care must be taken in examination of diseased crania with respect to this point, not to confound primary with secondary lesions.

(*d.*) Sinuses are largest, as a rule, in bones which from the standpoint of development are most complex, that is to say, have the greatest number of centres of ossification. Thus, the superior maxillary bone has certainly three, perhaps seven centres; the sphenoid has five; the ethmoid and frontal together, four.

Now it is well known that fibroid growths, exostoses, etc., very commonly originate within and from mucous sinuses. Is it not more than coincidental that expressions of hypertrophy should be most frequent in localities where the greatest number of centres of growth have early coalesced?

(*e.*) The brain-case, considered as a collection of bones designed to protect the brain, constitutes to a limited extent a physiological as well as a mechanical unit. The centres composing it become weakened in individual force after closure of the sutures, so that a diseased process is rarely confined to an embryonal area.

It is a fact worthy of notice, that while in the growing cranial bone we find its greatest thickness in the position of its centre of ossific deposit, in

It originated within, and was for the most part confined to the nasal septum. It here formed a rounded mass, smoothly covered on its sides, as well as above and below, by the two widely-parted layers of Schneiderian membrane belonging to the septum. It did not extend quite to the back of the septum, or to the floor of the nostrils (*sic*), between which and the tumour the cartilaginous part of the septum lay crumpled but otherwise healthy. It was incorporated with the base of the cranium from the lower part of the body and right internal pterygoid process of the sphenoid forward, the crista galli being involved in the disease, but not the cribriform plate of the ethmoid bone.

[1] The Resection of the Upper Jaw, Berlin, 1857, 17.

the adult bone this thickness is shifted, so to speak, to its margins.[1] In other words, a marked degree of vascularity is present at a point remote from the centre. Familiar instances of this are seen in the superior angle of the occipital bone, the great wing of the sphenoid, and the orbital plate of the malar. In consequence of such an arrangement, by the time the sutures are accurately adapted, vascular activity is most pronounced along their lines, and continues so throughout adult life.[2] This applies more particularly to flat bones. In diseased action a premature accession to the stage of sutural union causes thinning in the body of the affected bone, the area of deficiency always lying somewhere between that for the centre of ossification and the borders of the bone, though it may involve the latter.[3]

(*f.*) In the long bones the centres of ossification, while losing identity in form, may maintain a peculiar independence of action. Thus, in dislocation of the adult femur on the dorsum of the ilium, the epiphysis has remained displaced after the reduction of the shaft. Epiphyses may separate spontaneously in osteo-myelitis. In fracture of the neck of the femur, that portion of the neck attached to the epiphysis may become absorbed, restoring to the epiphysis its original contour. In chronic arthritis, a series of morbid phenomena are restricted near to or within the epiphysal extremities of the bones. A sequestrum may be restricted to the diaphysis. Indeed this is the rule, the extremities of a bone rarely becoming involved. On the other hand sequestræ may be formed within the epiphyses themselves.[4] Disease of epiphyses impairs the growth of the shaft, as *per contra* disease of the shaft affects the growth of the epiphyses. The centre of ossification of an epiphysis may become necrosed.[5] Many joint diseases have their origin in their contiguous epiphyses. The region of the knee-joint, for example, is limited by the epiphysis of the femur above and by that of the tibia below. These with the patella and intervening synovial membrane make up an aggregate within which diseased action, more especially its chronic expression, finds an area insulated in part (by its origin, nerve and blood supply, and method of growth) from those of the adjoined diaphyses.

(*g.*) In some localities, as in the neck of the femur and in the outer wall of the orbit, we find that atrophy is one of the most constant characters of advanced age. It will be seen that in both these localities we have terminal

[1] Humphrey, Treatise on the Skeleton, 186.

[2] Gibson maintained that the sutures exist as the result of the meeting of opposing forces of growth. It would appear, therefore, that the thickening of the bones at their points of contact occurs only where they are instances of *sutura vera* and *harmonia*, as opposed to those of *sutura squamosa*.

[3] Thomas Smith, Trans. Path. Soc., London, 1865, 224; also, a Specimen in W. & H. Museum.

[4] Brodie, Surg. Lectures, 222. W. Adams, Trans. Path. Soc., III. 165.

[5] Birkett, Trans. Path. Soc., London, 1826, vi. 288. Cat. to Mus. Guy's Hos., No. 1484, 49.

areas of growth: in the first the end of the shaft of the femur, in the second the lines of junction of the greater wing of sphenoid with the orbital process of malar. It would here appear as though the part last formed was the first to give way, and that in these instances, at least, evidence of retrograde activity is most marked along the lines of progressive activity.

(2.) VASCULAR SUPPLY.—*Vascular currents, while determined by the needs of the tissues in which they terminate, may also modify, under diseased action, the region through which they pass.*

Thus, the spheno-parietal suture disappears at an early date, and the tract of the great meningeal artery is a favourite area for ossific change,[1] as also is the outer plate of pterygoid process and the external angle of the frontal bone.[2]

The malar bone and the posterior portion of the superior maxillary, at points where they are perforated by their respective arteries, viz., the malar branches of infra-orbital and the alveolar branches of the internal maxillary, are liable to similar changes—the former in the young subject more especially, where the malar is proportionately thick and vascular, the latter, in the senile subject, where the parts about the foramina are often rugose. This last may be of rheumatic origin.

In two of the most noted instances of facio-cranial exostosis on record, viz., those of Murchison[3] and Lebert,[4] in the one enormous outgrowths appear in the malar bones, while in the other they are but slightly involved.

The direction of a vessel will often decide the locality of an inflammation, and conditions being favourable, that of a sequestrum also. Thus, the nutritive vessel of the shaft of the femur being directed upwards, medullitis is more apt to be located toward the proximal than toward the distal region of the medullary canal. The corresponding artery of the tibia, on the other hand, running as it does downwards, will determine the situation of the tibial medullitis at its distal end.[5]

In specimens of fracture of the long bones the fragment remote from the main source of vascular supply is liable to undergo atrophy.

Atrophy, however, may occasionally take place in a marked degree within an area supplied with a main bloodvessel. As, for example, in the proximal end of the femur in cases of coxalgia, with loss of head of bone from caries. Such specimens quite constantly exhibit numbers of minute foramina, which we have denominated for convenience the foramina of ab-

[1] Specimen in Cabinet of Dr. W. W. Keen, showing syphilitic ostitis of zygomatic surface of great wing of sphenoid.

[2] Lebert's Atlas, pl. clxxv. fig. 3.

[3] Trans. Path. Soc. London, xvii. 243, pl. 10, xii.

[4] Atlas, pl. xxxii. fig. 1.

[5] Nobis, American Journal of the Medical Sciences, 1865, xlix. 43.

sorption. They are of a rounded form, closely aggregated, the bone being smooth in the interstices.

Morbid action is most frequent at that part of the bone within which the area of development is the largest and most active. Thus we see necrosis of the femur of the adolescent almost invariably occurring at the lower portion of the femur, since it is here that the greater degree of vascularity is found.

In the humerus its proximal end is under similar circumstances the one prone to disease. Indeed, morbid growths—such as tumours—are rarely found in any other portion of the bone. [See also quotation from H. Gray in preceding part of this paper.]

(3.) RELATIONS OF BONE TO MUSCLE.—*Continual excitation of points of connection of muscles with bones (more especially if such connection be by tendon) may prove to be an exciting cause to disease within such areas.*

Exostoses are often found along lines of intermuscular septa. The "rider's bone" is situated along line of insertion of the femoral adductor muscles. The "exercise bone" is seen on left humerus of Prussian soldiers.[1] The trochanter minor of femur may appear in an exostosed condition, extending along the line of the psoas and internal iliac muscles.[2]

The excitation, however, may not be of the kind or degree to secure hypernutrition as a result. Subject to many influences, among which a taint of the system is perhaps the chief, the same exciting cause may induce destructive changes in the bone itself.

The tendency to the limitation of diseased areas by muscular impressions is in many cases quite noticeable. Specimens are not rare showing the region of the origin of the third head of the triceps muscle to be affected with caries or ostitis while the remainder of the shaft of the humerus has remained in a healthy condition.

A locality on the upper and outer aspect of the upper third of the femur, defined by numerous punctate foramina, occasionally produces a pedunculate exostosis.

The influence of muscles in determining disease of the cranial surfaces is less pronounced than in the bones of the extremities.

The following localities are frequently the seat of minute hyperostoses: Inferior margin of malar, from masseter muscle; mastoid process, from sterno-cleido-mastoid muscle; occipital protuberance and crest, from nuchal ligament and post-cervical muscles.

The impression of the temporal muscle is smoother than other portions of the cranium, and is rarely the seat of diseased action. The same may

[1] Virchow, Osseous Tumours, vol. ii. 72.

[2] Birkett, Guy's Hospital Report, 1868, xiv. 499.

be said of the impressions on occipital bone. In the specimens of craniofacial exostosis of Murchison and Lebert, this region is entirely free from osteophytes.

The inter-temporal space—a region including median portion of vertex, and extending thence downwards and backwards to and behind the mastoid portion of the temporal bone, is less protected by muscular masses than other portions of the skull. It is owing to this fact that we frequently find here striking examples of excitation, probably of traumatic origin. In a specimen in the Wistar and Horner Museum, the space between the impressions of the temporal and post-cervical muscles was the seat of a well-defined sclerous exostosis.

The liability of the space between the mastoid process and foramen magnum to become inflated, exostosed (pneumatic process), or depressed, leads us to conjecture whether there may not be some connection between this area and the projection of the para-mastoid process in the hog and horse. The tendency of the mastoid process to become carious in adolescence, and frequently to undergo partial atrophy in advanced life, is suggestive of the fact that this process is peculiar to man, and it may be that one of the causes of its easy obedience to life changes is in some way associated with its zoological significance. The same may be said of the fixed styloid process which becomes exostosed during senility. The *lingula sphenoidalis* becomes inflated in old age. There is a suspicion that naso-pharyngeal polypus at times originates from this region.[1]

For the sake of illustrating in a particular bone the application of the foregoing propositions, let us select the lower jaw, endeavoring to account for its diseases in this manner.

The lower jaw is a symmetrical bone, the two halves arising independently of one another.

Its power, so to speak, resides in its halves, and not at or near the symphysis. Tumours are found, therefore, rarely at the median line. Excluding the gum tumours, which form a separate group, the only growth occurring at the symphysis is an occasional exostosis.[2] The alveolar region being designed especially to accommodate the teeth,[3] furnishes distinctive features in its vascularity, and in its contact with a mucous surface; hence arises a distinct group of tumours for this region—the dental tumours and the epulides. Exclusive of the alveolar region the lower jaw has thick compact walls with little cancellated structure; hence caries is uncommon, while necrosis is relatively frequent. It is without epiphyses; hence diseases of the joints are rare. It is a membranous bone; hence

[1] Guerin, Gaz. des Hôp. 1865, 375, Syd. Soc. Retros. 1867, 241.

[2] Hyrtl, Topograph. Anat., i. 324.

[3] "The alveolar processes of both jaws should rather be considered as belonging to the teeth, than as parts of the jaws." Palmer's Hunter, vol i. p. 4.

fibrous tumours are common, but the cartilaginous are rare. It is a vascular bone; hence encephaloid is more frequent than scirrhus. Primary scirrhus is one of the rarest of maxillary tumours. The angle of the jaw is subject to great muscular traction, through the masseter, internal pterygoid, and temporal muscles; hence this region is prolific in fibroid and cystic tumours. In addition, it is curious to remark, the greater potentiality (?) possessed by the right side of the bone. Tumours of all kinds are more frequent on this side.

In the region of the head of the tibia, noted for its tendency to disease, we find among other causes the following: Its cancellated structure predisposes it to strumous deposit, cancer, caries, inflammation and its consequences. The protracted activity of the epiphysis as a distinct centre sustains the vascularity for an unusual period. The large area covered by the epiphysis causes in its disorders tendencies to articular complications. The numerous and powerful muscular connections conjoined to the comparatively slight protection, secured to the part through the surrounding skin and connective tissue, lead to development of tumours, more especially the exostoses.

Such are some of the relations which appear to obtain between methods of development, growth, habit, vascularity, etc., and localization of diseased action in the osseous system. They are, it is acknowledged, meagre. Believing, however, that every biological principle must be proved by the test of pathology, there is a strong probability that eventually we may arrive at something of decided value.

ART. XII.—*Hydrencephalocele Radically Cured.* By DANIEL LEASURE, M. D., of Alleghany City, Pa., late of New Castle, Pa.

I WAS called January 24th, 1870, to see P. P., female, aged fifteen months, labouring under occipital spina bifida, or hydrencephalocele. When two weeks old, she had been treated by a surgeon of high repute in a western city, where the parents then resided, but without success. When I saw her, she had a tumour, nine inches in circumference, occupying the lower central portion of the occipital region. On lifting up the tumour, and passing the fingers up underneath its pendent portion, a foramen in the occipital bone could be distinctly felt about an inch in its lateral diameter, and situated in the lower third of that bone, but I could not determine positively whether it extended near, or quite to the foramen magnum, owing to the thickness of the integumentary and muscular covering at that part. The fluid contents of the tumour communicated freely with the cavity of the cranium, and at one time, the parents inform me, that during a severe indisposition, in which the child seemed to labour under some cerebral disturbance, the *tumour shrunk up* to less than half its ordinary size. This, I take it, would argue, that whatever may have

been the nature of the disease, the state of the intracranial organs must have been one of anæmia of the vessels of the brain proper, constituting a tendency to vacuum, within the cranium, which the fluid in the tumour went to fill temporarily, until such time as the blood, returning to the brain, thrust out again the superabundant fluid into its reservoir, the tumour. However this may be, the fact is worthy of note, as possibly bearing on the pathology of certain disturbances of the brain, the precise cause of which affords room for further research. The contents of the tumour seemed entirely fluid and semi-translucent, in this respect presenting very much the appearance of a well-developed hydrocele. The antero-posterior circumference of the head, passing the tape under the pendent portion of the tumour, was nineteen and a half inches. The general health of the child was good, though it was pale and somewhat hydrocephaloid. A number of professional gentlemen had examined the case, and gave no encouragement. Indeed the statistics of treatment for radical cure afforded little room for hope, and I could give none. However, on a visit to Philadelphia in February, I consulted my friends Professors Gross, Pancoast, elder and younger, and D. H. Agnew, all of whom agreed, that, while a plan of treatment I proposed, offered as fair a prospect as any other, the probabilities of success were so few as to scarcely justify an effort at cure.

On my return to New Castle, Pennsylvania, I explained to the parents the unfavourable opinion we all entertained of a successful treatment, and also submitted to them the plan I had proposed to my friends in Philadelphia; and stated that I was willing to make an effort to save their child, with a perfect understanding that I would probably fail, and the child die of the effort to cure, sooner than it would if not interfered with.

The patient was teething, and that complicated the treatment, but the tegumentary covering of the tumour gave evidence of thinning down to a point of attenuation, where rupture was sure to supervene, and the sudden discharge of its contents, and the escape of the cephalo-spinal fluid from within the cranium, must inevitably end in convulsions and speedy death. The parents gave a cordial assent to the effort to save their child, and, as they were unusually well informed on all points connected with the case, the father being a clergyman, and there being several physicians and surgeons related to the family, amongst whom the matter had been the subject of grave consideration, I felt sure of an efficient and intelligent co-operation on their part, a matter of no small moment in such an undertaking. The child had not been permitted to essay walking, had never crept, but had always been nursed and carried lying on her side on a large pillow, because she could not lie on her back, on account of the size of the tumour, and the danger of its rupture from pressure.

The indications presenting themselves to my mind were, firstly, to get rid of the fluid in the tumour without permitting any portion of the cephalo-spinal fluid contained within the cranium and spinal column to escape; thereby removing hydrostatic pressure in a degree from the brain and spinal marrow, and permitting the blood to rush in and distend the cerebro-spinal vessels, in the effort to fill the tendency to vacuum created by the escape of the fluid from within the walls of the skull and spinal column, which would not yield to atmospheric pressure, and keep up a steady compression of their contents; and secondly, to cause the foramen in the skull to be filled up by adventitious unyielding tissue or bone, thus forever preventing the return of the malformation. The manner in which I

undertook to meet these indications will be presently described. My idea of the treatment was suggested by the ordinary treatment for the radical cure of hernia, by compression of the walls of the ring through which the protrusion takes place, until inflammation first, and reparative action afterwards, results in the production of plasma, that glues the sides together, and closes the passage against farther protrusion of the contents of the abdomen.

If I could get rid of the fluid in the tumour safely, and apply an apparatus that would effectually prevent the escape of the cephalo-spinal fluid from within the cranium, and at the same time set up a certain amount of irritation, inflammation, and partial destruction of that part of the integumentary coats of the tumour pressed by the apparatus against the edge of the foramen in the occipital bone, and also of the external periosteum of the skull at the same point, there would be a reparative process set up; the sero-fibrous lining of the tumour (the dura mater and possibly arachnoid) would slough, permitting the raw surfaces of cellular tissue to come in contact, and unite in the ordinary way, by plasma; while the partially destroyed periosteum would also throw out plasma, and it would be *bone bearing plasma;* and it was possible that nature, thus provoked, might go on by a resumption of its work under the original law of symmetrical development, to fill up the fissure or chasm left in the embryonic development of the fœtus, and so close the foramen in the bony case of the brain, and rescue the patient from her perilous condition.

March 3d, I placed a gum-elastic band, less than half an inch in width, and two inches in its diameter when not stretched, such as is ordinarily used to confine files of papers, around the base of the tumour, where it was only eight inches in circumference, so as to contract that portion of the scalp dissected off from the skull by the distending pressure of the fluid in the tumour; and at the same time, add an additional pressure to its covering membranes, with a view of keeping as much fluid as possible within the cranium; thereby guarding against any additional accumulation of blood within the cerebro-spinal vessels; for I did not fear any ill results from the pressure of the fluid *outside the vessels*, for the parts had become accustomed to that, but *I did fear* the pressure of a volume of blood *within the vessels*, corresponding to any quantity of the extra-vascular fluid that might escape suddenly.

After permitting the band to be worn two days, I punctured the sac with the capillary trocar of the hypodermic syringe, and applying the syringe, pumped out one full of the instrument after another, till I had removed an ounce and a half of a dense serous fluid, resembling in all essentials the ordinary healthy cephalo-spinal liquor; after which the elastic band was readjusted, so as to keep uniform pressure on the tumour, primarily, and upon the fluid within the cranium secondarily.

On the following day, the same operation was repeated, drawing off two ounces of the fluid, and readjusting the band as before. The sac would become quite soft and relaxed during these tappings, but by drawing the elastic band away from the base, towards the apex of the tumour, a continuous pressure was kept up; though the contents of the sac would increase some during the intervals between the tappings. I was thus solicitous concerning the matter of preserving equable pressure on the organs within the skull, because I lost the first and only case of this malformation I ever had, nearly thirty years ago, from the too rapid abstraction of the contents of the sac, permitting a sudden spirt of cephalo-spinal

liquor from within the cranium into the nearly empty pouch, inducing speedy death of the patient. This operation of drawing off the fluid was repeated again on the next day, and during all this time the little patient remained in her usual health, eating, sleeping, and playing with her toys as though no adventurous hand was experimenting with her life.

In all these preparatory steps, as all through those that followed, I was ably assisted by my friend and former pupil, Dr. John B. Reinholdt, of New Castle, Pa., late Surgeon 51st Infantry, Penna. Vol. March 7th, two days after the last tapping, having prepared all the necessary apparatus, I proceeded to pass a small trocar into the lower posterior part of the tumour, where it was most pendent; and withdrawing the stylet, permitted the fluid to the amount of eight fluidounces to escape into a vessel held by an assistant. As the contents of the tumour flowed slowly out, Dr. Reinholdt placed two fingers of his right hand on the posterior integumentary covering of the tumour, supporting the patient's head with his left hand on the forehead, and gradually and firmly pressing the integuments before his fingers as the sac collapsed; he passed them into the foramen in the occipital bone, and causing the points of his fingers with the membranes, cellular tissue, and skin composing the enveloping sac of the now shrunken tumour to adjust themselves to the opening, he effectually closed it like a valve and prevented the escape of any portion of the fluid contained within the cranium, while the remaining fluid in the sac was thoroughly drained out. On examining the region around the occipital fissure, we found that the edges began to dip towards the foramen about an inch from its edge on all sides, and this formed a pit or sulcus all around the fissure. We were not able to decide whether the fissure extended down to the foramen magnum, or whether there was a bridge of bone between the foramen magnum and the unnatural fissure. The tissues that formed the covering of the late tumour had shrunk up, and being greatly condensed, formed a ring around the fissure varying from one-half on the upper side to an inch in thickness on the lower side. Keeping the cranial opening carefully closed all the time by the fingers of my assistant, I formed a compress of cotton wool enveloped in a piece of fine muslin of a size sufficient to fill completely the hole in the bone, and also the depression around it, and leave a free surface of pad protruding beyond the surrounding healthy skull and tissues, and interposing a fold of silk oil cloth between the pad and the skin adapted it to the sulcus, while the assistant adroitly withdrew his fingers, and used them to sustain the compress *in situ* until the remaining steps of the dressing were completed. Over the compressing pad or ball, I now placed an ordinary soft elastic gum disk pessary (the only thing I had at hand to fill the indication), and over this an elastic gum band formed from an ordinary shoulder brace, passing around the antero-posterior circumference of the head, and secured on the forehead by a buckle and by tapes tied under the chin and over the top of the head. Of course the patient cried out a good deal, as no anæsthetic was used for obvious reasons, but it soon fell asleep, and did not show any signs of cerebral disturbance then nor afterwards. On the fourth day, still assisted by Dr. Reinholdt, I removed the apparatus, and substituting a boxwood compress which I had removed from an umbilical truss, for the soft compress, I reapplied the disk of India rubber and the elastic band as before. No fluid had escaped during the interval, and none escaped during the dressing, care being taken to keep the parts well in apposition by the fingers of the assistant. No untoward symptoms followed, and on

the fourth day, or eight days after the evacuation of the tumour and application of the apparatus, the dressing was again changed. At this time no effort was made to prevent the escape of fluid from within the skull, and none escaped. The opening in the occipital bone seemed to be filled up by plastic material, which, though soft, was quite firm. There was a good deal of redness of the integuments that had been subjected to pressure, with some tendency to slough. The parts were thoroughly cleaned with soap and warm water, and then freely anointed with a solution of carbolic acid in glycerine, twenty grains to the ounce, and a soft pad of cotton wool substituted for the hard compress, with a piece of silk oil cloth interposed between the pad and the sloughing integuments, and over this the disk and elastic band as before. The solution of carbolic acid, reduced one-half with water, was applied four times a day by pouring it between the oiled silk and the skin at the upper side of the compress, and by slightly pulling out from the head the upper portion of the pad the solution passed down to the sloughing parts. During the last four days a bistoury was freely passed through the folds of integument around the compress so as to permit the infiltrated fluid to escape out of the subcutaneous cellular tissue, and also to facilitate the discharge of the debris of the serous lining of the sac in that portion where there was no pressure made. On dressing the sore two days after the last dressing, there was found to be an extensive slough occupying the whole of the space subjected to pressure. It was rather loosely attached, and fearing to detach it prematurely, I did not interfere with it, but after thoroughly bathing it with the solution of carbolic acid, a poultice of flaxseed meal was moulded into the depression and secured by the elastic bandage, omitting the gum disk, as firm elastic pressure was no longer needed, and the separation of the slough was awaited with much anxiety. After this it had daily dressings with the carbolic acid solution and the flaxseed meal poultice; and on the fifteenth day after the operation I made a thorough examination of the parts and found that the slough extended down to the external periosteum, and a portion of the skull was denuded of its pericranium and somewhat rough. The slough was slowly separating itself from the subjacent parts, and the foramen in the bone was closed by a dense firm plasma which offered strong resistance to any pressure that I felt safe in making. The case was now left to the care of the parents, who made morning and evening dressing, and I saw it every third day. About this time the child was put upon the use of syrup of the pyrophosphate of iron with quinia three times a day, and she rapidly improved in colour and strength.

Her appetite demanded a great deal of food, and her bowels were soluble without taking aperients, which had not been the case previous to the operation. Throughout the whole treatment she had retained her ordinary diet of milk and bread, and had taken *no medicine* till I ordered the iron, quinia, and phosphorous mixture as a tonic and blood-food.

The slough slowly separated and disclosed underneath a healthy granulating surface, no perceptible portion of bone exfoliated, and the opening in the skull was filled up by a firm dense scarcely elastic plasma, presenting to the touch a resemblance to cartilage, which is gradually becoming harder to eventuate as I hope in tissue, resembling that which plugs up the foramen made in the skull by the crown of the trephine, after a successful operation with that instrument.

The tegumentary covering of the tumour has shrunk up, and formed a

rather solid button-like protuberance around the seat of the late opening in the bone; and now, on the 25th of May, it is about two inches in diameter at its greatest circumference, and under the use of an iodine ointment it is visibly decreasing, but if after a reasonable time has elapsed, it remains a source of inconvenience, a few strokes of the bistoury will remove it entirely.

The patient has protruded several teeth during the progress of the case, without even the ordinary irritation attending that process. She has never had an hour's indisposition during all the time of treatment, but ate and slept as usual, and has, since the third week after the operation, ridden out daily in her little carriage; lies comfortably on her back while resting or sleeping; has learned to walk and run about like any other child; has grown fleshy and ruddy, and being somewhat hydrocephaloid is rather precocious, but has not at any time manifested, and does not now show any indications of cerebral disturbance, and there is no appearance of the plug in the bone yielding to pressure from within the skull to result in a reproduction of the deformity; and so far as the results of the operation are concerned I think it is safe to consider it successful.

ART. XIII.—*An Additional Method to determine the Degree of Ametropia.* By WM. THOMSON, M. D., Assist. Surgeon to the Wills Hospital. Read before the American Ophthalmological Society at Newport, Rhode Island, July 22, 1870. (With a wood-cut.)

IN the number of this Journal for January, 1870, will be found a description of a test for ametropia, based on the experiment of Scheiner. It was there shown that whenever the visual axis is too long or too short, a point of light, used as a test object, will appear double to the eye of an observer when it is examined through two small perforations in an opaque screen.

A short experience with the disk clinically, or with ametropia artificially produced, convinces one that the degree of ametropia influences the apparent distance apart of the double lights, and that if that distance could be computed with accuracy, the degree of ametropia could be diagnosticated, and a correcting lens selected without a prolonged empirical examination.

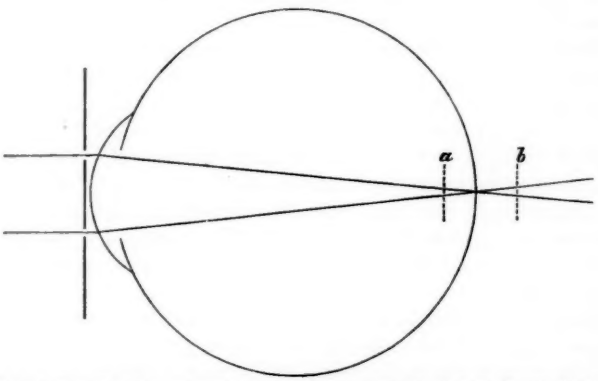
After a sufficiently full demonstration of the laws of refraction as applied to the human eye, and an exhaustive analysis of its refracting surfaces of different curvature and its media of varied density, Donders gives his authority, in addition to that of Helmholtz, for the adoption, for purposes of calculation, of the simplified diagrammatic eye of Listing, which consists, as is well known, of a single refracting surface of 5 mm. radius in curvature, and a medium whose index of refraction is 1.333, whose posterior focus is 20 mm. and its anterior focus 15 mm. from its refracting surface.

From a comprehension of these cardinal points, it becomes possible to trace in this simple eye the course of any given ray of light; to find the

points of conjugate foci; to ascertain the dimensions of retinal images, or of circles of diffusion which fall upon the retina in ametropia; and these values thus found may be considered equal to those which would exist under the same circumstances in the human eye, with its complicated apparatus composed of two complete dioptric systems.

Should an opaque screen, having in it two perforations, each .5 mm. diameter, and 4 mm. apart, be placed before a Listing's eye, its single surface would be converted into two minute lenses, prismatic in form, with their bases towards each other, and capable of forming independent images, which, when the length of axis is normal, fall upon the same point at the posterior focus. Rays of light from a source of illumination sufficiently distant to afford parallel rays would pass through these two openings, would be refracted at the anterior surface, and would converge to a point at 20 mm. distant posteriorly, where the two images would be exactly superimposed and would produce the effect of a single picture; and in this transit would be afforded, as a fixed quantity for future use, a triangle of two sides, each 20 mm. in length, united by an arc of 4 mm.

Should the retina of this eye be either advanced towards or removed from its refracting surface, an ametropia would be produced; the images formed by the rays passing through the holes would fall upon it separated from each other in proportion to the departure from the length of the normal axis; and a single point of light, at a distance, for example, of twenty feet, would, in accordance with the law of projection, appear double; and the two flames would be apart to a greater or less degree, in accordance with the amount of ametropia.



Listing's Eye, three times enlarged, showing, *a*. Hypermetropia of $\frac{1}{65}$; *b*. Myopia of $\frac{1}{65}$.

These considerations lead to the search for some fixed quantity without the eye which shall bear a proportional value to the known measure within it, and the convenience of the metrical system leads me to propose

for calculation an angle of 5 m. radius, with arc or sine of 1 m., as equal to the angle of 20 mm. radius and 4 mm. arc with which we are already acquainted.

As a familiar illustration, let it be supposed that the two rays which are transmitted by the screen from a point of light five metres distant are two rigid wires, in contact anteriorly, passed through a screen, bent towards each other, and brought into contact 20 mm. from their posterior extremities. Should these posterior ends be moved apart, a much greater excursion would be made anteriorly; and if the separation at the former point should amount to 4 mm., the latter would be found distant 1000 mm., since 20 : 4 :: 5000 : 1000. Furthermore, we are able to ascertain where these wires would converge before or, if prolonged, behind the screen, when their anterior extremities are separated either by being drawn asunder, or crossed upon each other. When, for example, the anterior extremities are drawn apart 250 mm., we say 250 : 5000 :: 4 : 80 mm.; and we thus imitate very nearly the course of the rays in a hypermetropia of $\frac{1}{80}$ mm. or $\frac{1}{3}$, which diverge when they leave the eye as though they had their origin from a point of 80 mm. or 3″ behind the nodal point. In like manner we imitate a myopia of $\frac{1}{3}$ by crossing the anterior ends and causing there a separation of 250 mm., when the wires would be found to converge and intersect each other at 80 mm. nearly in front of the screen.

From the last demonstration it arises that if we are justified in using Listing's eye for comparison, and if we can clinically measure the distance between the double images as seen through the screen, we are able to ascertain where these rays, if prolonged, would unite, before or behind the nodal point, and thus determine in a very expeditious and happy manner the degree of ametropia.

For this purpose the patient is placed 5 metres distant from a small point of light, having before his eye an opaque screen with two perforations in it, each .5 mm. in diameter, and placed 4 mm. apart, through which, in the overlapping space between the two holes, as described in a previous paper, he searches for the double images. Myopia or hypermetropia may be determined by placing over one of the holes a piece of ruby glass, when one of the images will become red, and be found on the same side with the hole covered in myopia, but crossed and on the opposite side in hypermetropia, a result which is explained by the well-known law of projection.

Having ascertained the presence and kind of ametropia, the red glass is removed, and the distance apart of the two images is measured by means of another small flame or light held in the hand of the surgeon, which is brought into the patient's field of vision whilst he looks at the first-mentioned fixed light. The second flame is moved in a line with the double images until the patient is able to say that one of the moving flames coincides with or overlaps one of the fixed ones, and that but three

instead of four flames are perceived; and when this is accomplished, this distance of the fixed from the moving flame is ascertained by an ordinary rule or measure. Several other methods have been employed with success, and the ingenuity of each surgeon will enable him to overcome any difficulties he may encounter in these manipulative details.

The brief notes of a few cases will illustrate the use of this method.

Mrs. G., placed 5 m. from a point of light (a gas-burner turned low), saw two lights through a disk whose apertures were apart 4 mm., and the one coloured red stood on the side of the hole covered with red glass, thus demonstrating myopia. A candle lighted and held by the surgeon was now brought near to the gaslight, and it also appeared double, but it could be distinguished from the gas by its motion and its larger flame. It was moved back and forth until the left-hand flame of the candle overlapped the right-hand one of the gas-burner; and when this was accomplished, the distance from gas-burner to candle was measured with a common rule, and found to be five inches, or 121 mm. Then $121 : 5000 :: 4 : 165$, which, reduced to English inches by dividing by 25.5, or to French inches by dividing by 27, gives 6.5 in English inches as the distance of convergence of the rays from the nodal point. The myopia was then found to be corrected perfectly by a $-\frac{1}{6}$ placed $\frac{1}{2}$ from the nodal point.

In a case of aphakia, after a successful operation for cataract, the distance between the double lights was found to be 10 inches, or 250 mm.; and $\frac{5000 \times 4}{250} = 80$ mm., or 3.2 inches. This case required for its correction a $+\frac{1}{3.5}$, $\frac{1}{2}''$ from the nodal point, showing that the hypermetropia $= \frac{1}{3}$.

A case of hypermetropic astigmatism in a person able to give concise replies, and who could fully relax his accommodation, gave the following results. With the holes so placed as to analyze one meridian, the distance apart was $4'' = 101$ mm.; and in the meridian at right angles to first, 4.5, or 115 mm. Let x be the degree of ametropia, and we have the formula: $x = \frac{5000 \times 4}{101} = 196$, or 7.7 in., which indicates that the rays diverge from this meridian as though they arose from a point $7.7''$ behind its nodal point, and that a convex $\frac{1}{8.2}$ would suffice for its correction.

After atropia an $\frac{1}{8}$ was found sufficient, combined with a cylinder of $\frac{1}{60}$, to overcome the greater ametropia of the other meridian.

It will be found convenient to use the English measures for these calculations, and to reduce Listing's eye and the other quantities to the following values:—

Radius,	5 mm.	= 0.2	English inch.
Anterior focus,	15 "	= 0.6	" "
Posterior "	20 "	= 0.8	" "

The distance apart of apertures in the screen, 4 mm. = 0.16.

The distance from observer to test-light, 5 metres = 200 inches, or $16\frac{2}{3}$ feet.

The rule then would be to multiply the distance from the eye examined to the test-object by the arc of the small angle, and divide the result by the distance apart of the two lights as ascertained by measurement.

Mr. W. suffers from a high degree of myopia, using $-\frac{1}{4.5}$, which does not fully correct it. The distance apart of the images was 8 inches. Then $\frac{200 \times 0.16}{8} = \frac{3200}{8} = 4$. With $-\frac{1}{3.5}$ the double lights were perfectly fused together, and his myopia corrected.

Mr. M., with the disk so placed that a line uniting the holes was horizontal, saw the points of light apart $4\frac{3}{4}$ inches, and in the vertical meridian they were 3″ apart. $\frac{200 \times 0.16}{4.75} = 6.7''$. $\frac{200 \times 0.16}{3} = \frac{3200}{3} = 10\frac{2}{3}$. In these meridians the points of light were brought together respectively by $-\frac{1}{6}$ and $-\frac{1}{10}$, and the myopic astigmatism was fully corrected by a sphero-cylindroid lens, $-\frac{1}{10} \supset \frac{1}{16}$ cy.

Mr. D., myopic astigmatism; the images apart in one meridian 5 inches, in the other $1\frac{1}{2}$. $\frac{200 \times 0.16}{5} = \frac{3200}{5} = 6\frac{2}{5}$. $\frac{200 \times 0.16}{1.5} = 20$. A glass $-\frac{1}{5.5}$ corrected the greatest, and $-\frac{1}{20}$ the least myopic meridian, and a spherical and cylindrical of $-\frac{1}{20} \supset \frac{1}{8}$ cy was ordered.

It will be observed that by the English measure the formula is so simple that it can most readily be remembered, viz., 200 × 0.16, divided by the distance between the lights; and that a separation apart of $1'' = \frac{1}{32}$ of ametropia. I have constructed a table which will save the slight trouble of making even this short calculation.

Distance of images apart.	Degree of ametropia.	Distance of images apart.	Degree of ametropia.
$\frac{1}{2}''$	$\frac{1}{64}$	5″	$\frac{1}{6.5}$
1	$\frac{1}{32}$	6	$\frac{1}{8.3}$
$1\frac{1}{2}$	$\frac{1}{20}$	7	$\frac{1}{4.5}$
2	$\frac{1}{16}$	8	$\frac{1}{4}$
3	$\frac{1}{10}$	9	$\frac{1}{3.5}$
4	$\frac{1}{8}$	10	$\frac{1}{3.2}$

In selecting a glass for the higher degrees of ametropia, its distance from the nodal point must be considered, and a lens chosen for myopia $\frac{1}{2}''$ stronger, and for hypermetropia $\frac{1}{2}''$ weaker, than that which would be required after a calculation by the present method.

Having satisfied ourselves that an ametropia does exist in any given case, and that the visual axis is too long or too short, we can measure the axis with precision by using the Listing eye for comparison. We know that when an object is placed so near the eye as to give divergent instead of parallel rays, its image must fall behind the position of the posterior focus.

These points of emission and convergence are the conjugate foci, and are found by the formula $f'\,f'' = F'\,F''$; f' being the distance of the object from the anterior focus, and f'' the distance of the image from the posterior focus; F' and F'' being the known quantities of the anterior and posterior foci. The proportion is $f' : F' :: F'' : f''$; hence $f'' = \frac{F'\,F''}{f'}$.

In the case of Mrs. G. we found a myopia of $\frac{1}{6.5}$, and we know that an object distant $6\frac{1}{2}$ inches from her nodal point has its image on her retina. Should we desire to ascertain how much her visual axis is too long, assuming with the best authorities that it should be normally 22.23 mm., we subtract from 6.5 = 165 mm. the distance from nodal point to anterior focus = 20 mm., and we have $f' = 145$; to find $f'' = \frac{F'\,F''}{f'}$ we say $f'' = \frac{20 \times 15}{145} = 2.07$. The retina is 2.07 mm. distant from its proper position, and her axis is therefore 22.23 + 2.07 = 24.30 mm. in length.

The same formula is used for hypermetropia; but as the distance from the nodal point to the object is negative, f' is found by adding the distance of the point of convergence behind the eye to the distance from the nodal point to F', and with hypermetropia of $\frac{1}{6.5} = 165$ mm. $f' = 165 + 20 = 185$, $f'' = \frac{20 \times 15}{185} = 1.6$. Subtract this quantity from 22.23, and we have the length of axis which gives rise to this degree of hypermetropia = 20.63.

An instrument for making these examinations has been constructed for me by Mr. Zentmayer, which consists of four disks of sheet-brass $1\frac{1}{2}$ inch in diameter, attached together by a pivot passing through a small projecting handle upon each disk.

No. 1 has in its centre a single perforation 1 mm. in diameter.
" 2 " 12 perforations, $\frac{1}{2}$ mm. apart.
" 3 " 2 " 3 " "
" 4 " 2 " 4 " " those in the last three disks being all $\frac{1}{2}$ mm. in diameter.

It is known that when an ametropic eye regards a distant point of light, a circle of diffusion must fall upon its retina; and that by the exclusion of peripheral rays, by means of a small perforation in an opaque screen, definition may be so much improved as to enable the point of light to be distinctly seen. A rapid to and fro motion of the screen will bring other portions of the diffused circle on the retina under the influence of the diaphragm, and the test-light will to the observer appear to dance in accord with these motions. Screen No. 1 is used for this purpose.

The entire circle of diffusion may be influenced by a series of perforations

by the use of disk No. 2, through which the test-light will appear to the observer multiplied.

No. 3 has fixed in a groove a small slip of ruby-coloured glass, which may at will be pushed over one of its holes, and thus colour one of the double images of the test-light red. Myopia is distinguished from hypermetropia in this manner, and this disk is used when the point of light is employed instead of the ordinary test-types, and a glass is empirically sought for which will fuse the two images and correct the ametropia. The overlapping space is larger than in disk No. 4, the double images are more easily found, and the examination of dispensary patients or children is made with precision and rapidity.

Disk No. 4 is employed for the calculation of ametropia in the manner and by the formulæ above described.

ART. XIV.—*Poisoning by Strychnia Successfully Treated by Bromide of Potassium, with some Remarks on the Therapeutical Properties of the Bromides.* By CHARLES B. GILLESPIE, M. D., of Freeport, Pa.

I WAS called, December 17th, to a man, some miles in the country, who, the messenger reported, had fallen down in a fit, and had violent cramps. I found the patient lying on his face on a small trundle-bed, with his hands tightly clutching the bed-frame, and at every movement of the attendants thrown into the most violent clonic spasms. On lifting his head I recognized the patient as one who had that same morning purchased from my clerk three grains of strychnia for the alleged purpose of killing rats. It was evident that he had taken the poison himself, and the wretched man confessed that he had taken nearly all the strychnia some two hours before, for which he was now heartily sorry, and begged me to save him, solemnly promising, that if his life were only spared this time he would never attempt the like again.

This short explanation was interrupted half a dozen times by the most terrible spasms. His pulse was 70, hard and contracted; respiration good. The whole surface of the body was quite cold; great anxiety in the expression of the face; sight and hearing perfectly normal. On giving him drinks, the great difficulty was in getting the cup to his mouth without throwing him into convulsions; but when once there, he would gulp the contents down spasmodically in great mouthfuls. He had but little control over his arms; as soon as he let go his grasp on the bedstead they would jerk violently, and continue thus until he laid hold of something solid and immovable.

The spasms were evidently becoming more violent and frequent, and beginning to implicate the muscles of respiration. Not having the remedy I desired with me, I gave him a teaspoonful of the fluid extract of hyoscyamus, and then hurrying home weighed out one ounce of bromide of potassium, which I dissolved in three ounces of water. Of this solution I ordered one-half ounce every thirty minutes; and I felt so confident of its

efficacy in this case that I entrusted the administration of the remedy to a carefully instructed attendant, and did not revisit the patient till next morning, when I found him out of danger. The paroxysms had gradually become less violent and frequent, and by the time the last dose of bromide was taken at midnight, he was able to get up without assistance and walk to his own room. The only bad effects remaining were excessive muscular and nervous prostration, with an occasional slight convulsive shudder, which, however, entirely passed off through the day, and in thirty-six hours' time he was up and at his usual business.

I am confident, that but for the prompt administration of large doses of the bromide my patient would not have survived. How much the large dose of hyoscyamus had to do with the result I am not prepared to say; it produced a free and painless catharsis, and may have aided in relaxing the spasms. But to the well-known effect of the salt over the anterior or motor portion of the spinal cord, the good result in this case is especially to be attributed. The physiological effects of the strychnia and bromide of potassium are, I am sure, directly antagonistic. In this case, the patient had taken fully two grains and a half of pure strychnia, for I obtained the paper in which the strychnia was wrapped, and found that all of it was taken save about one-half grain that adhered to the paper, and which I afterwards weighed. This certainly was sufficient to destroy life in any human being.

I may here be pardoned for saying something about my use of the bromides in the practice of my profession. The first manufacturers of bromine and its compounds, in this country, were Drs. David Alter and E. Gillespie, of Freeport, Armstrong Co., Pa. This was more than twenty-five years ago; and it is to them I owe my first knowledge of the bromides and their use in medicine. For more than eighteen years I have used the bromide of iron and the bromide of potassium almost constantly in my practice. The bromide of iron especially is a great favourite, using it almost entirely to the exclusion of iodine in its outward application as a resolvent. Internally, it has proven, in my hands, to be one of the best chalybeates in use. In chlorosis, and all female irregularities, there can be nothing better. And in chronic diarrhœa, in urethral or vaginal discharges, it is a most valuable remedy. In many years of practice, I have never yet known it to fail in curing erysipelas, whether traumatic or idiopathic. My method of treating erysipelas is to freely paint the affected surface with the solution two or three times a day, at the same time giving the remedy internally. In diphtheria and croup, it has been my chief dependence. In the anginose and malignant forms of scarlatina I have tried it effectually, but without much apparent benefit. In senile catarrh and chronic bronchitis, where there is much expectoration and cough dependent upon its exudation into the air passages, it is a first class remedy, taken into the stomach and used occasionally by inhalation.

My experience with the bromide of iron proves its great value. It is

always reliable and safe, and in the form in which I use it, is quite palatable and easy of assimilation. My formula for preparing the bromide is the following:—

Take of bromine 1 pound, water 4 pints, small iron nails 3 ounces and 2 drachms. Pour the water into a one gallon glass bottle, and then add the bromine, and lastly the nails. Keep the bottle in a moderately warm place until reaction ceases; the union of the bromine with the iron will develop a great amount of heat, for which reason the glass ought to be well annealed. After the heat has passed off, decant the solution from whatever impurities may be in the iron, and keep in well-stoppered bottles. The dose of this solution is ten drops or less, three times a day, and may be given in sweetened water, or, what is better, in simple syrup. For external use, the solution should be painted on with a feather or small brush. For children, or as an application to parts of the body, where the skin is thin and sensitive, the solution should be diluted with water. Sometimes, when applied undiluted to the thighs or inner arm, it causes a great deal of pain, which, however, may be easily removed by the free application of the spirits of turpentine.

I have had many years' experience with the bromide of potassium, and have used it in a variety of diseases. In rheumatism, it has at times been of signal service; in various forms of spasmodic complaints I had found it extremely beneficial, without, however, being at the time aware of its true physiological power over the spinal cord.

ART. XV.—*Case of Vesico-Vaginal Fistule in a Person labouring under Constitutional Syphilis; with Remarks.* By NATHAN BOZEMAN, M. D., of New York.

(CASE VII. *Seventh Series commencing Oct.* 1867.)—On the 6th of November, 1868, Prof. Isaac E. Taylor, of this city, invited me to examine a case of vesico-vaginal fistule at the Charity Hospital. D. J. C. Black, one of the house physicians, has very kindly furnished me with the following history:—

"L. H., æt. 34, widow, admitted to the Charity Hospital March 14, 1868; has had four children, first two twins, and the last eight years old; has had irregular and painful menstruation since the birth of her first child. About six years ago, broke a glass syringe in her vagina, followed by profuse hemorrhage, and very soon afterwards a flow of urine, none passing naturally; has been operated upon three times for closure of the opening in the bladder, the last operation having been done on the 12th of October, 1868."

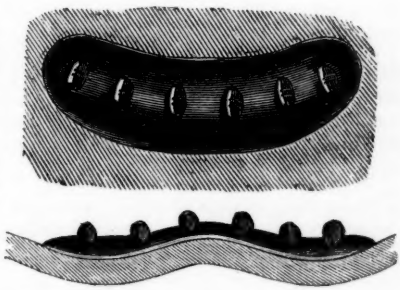
In these operations, I was informed, Dr. Sims's interrupted silver suture was employed.

On examination, I found the fistule sufficiently large to readily admit two fingers into the bladder; it occupied the root of the urethra, and the greater part of the trigone of the bladder, and therefore belonged to the class of urethro-vesico-vaginal fistules. The edges were double their usual thickness, and somewhat indurated; vesical mucous membrane around the opening highly congested and extremely sensitive. The slightest touch with the finger produced severe pain and vesical tenesmus, resulting in protrusion through the opening of the superior wall of the bladder. Vagina above the fistule presented a measly appearance; urethra patulous. Preparatory treatment consisted in warm water injections into the vagina, and in the application, on every other day, of argent. nit. ʒj to ℥j of water to the edges of the fistule and to the vesical mucous membrane around the opening.

Condition of the parts rapidly improved. The usual constitutional treatment for syphilis had been employed from the time of admission until now with but little interruption.

On the 17th of November, assisted by Prof. Taylor, and one or two of the house physicians, I proceeded to operate before the medical class of the Bellevue Hospital College. The patient was secured on my operating chair, and brought under the influence of chloroform. My large size self-retaining speculum was introduced, and the vagina dilated to its fullest extent, which brought into view every part of the fistulous opening. The first stage of the operation was completed with great trouble, owing to the almost constant vomiting and straining of the patient. The embarrassment was further increased by profuse hemorrhage and the darkness of the evening. The opening when pared admitted readily three fingers into the bladder. Six interrupted sutures secured with my button were found necessary to effect closure. Fig. 1 illustrates the size and shape of the button, front and edge views.

Fig. 1.



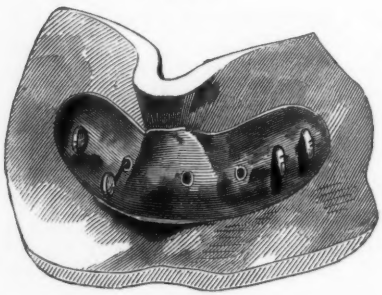
A male elastic catheter (No. 8) was used. The patient, on being carried back to her bed from the operating room, remained in an unconscious state for three or four hours. During this time the vomiting and bearing down continued as it had through all the different stages of the operation. On regaining consciousness, she complained of great soreness of the abdomen, for which fifteen drops of Magendie's solution of morphia were given, to be repeated *pro re nata*, the object being to obtain its fullest effect.

For six days after the operation, the pulse varied from 112 to 128. During this time there was more or less vomiting and straining, which could not be restrained by morphia, though administered by mouth and by hypodermic injection. Tenderness over the abdomen also continued.

On the night of the fifth day, during one of her attacks of vomiting, the patient felt something escape from the vagina, which she preserved and showed to me on the following morning. This I found to be a shot

from my suture apparatus, both ends of the wire having broken beneath it just where there is always the greatest strain. Upon examination with the finger, I discovered it was the third, the one to the right of the urethra. The day before this occurred there had been an action from the bowels attended by great and violent straining, the catheter being forced from the urethra by the effort. No doubt the suture gave way at this time. Notwithstanding all of these untoward accidents and symptoms, not a drop of urine was seen to pass per vaginam up to the eighth day, when the suture apparatus was removed. I now ascertained that two of the other sutures had given way (4th and 5th), probably in the same manner as the first which had broken. The first two and the sixth were all that remained, which being at the two ends of the button, held these parts in position, while the middle doubled upon itself almost at right angles. Fig. 2, front view, is intended to show the apparatus as it was at the time of its removal. The edges of the fistule were found united throughout, except at a point between the third and fourth sutures, just opposite the vesical end of the urethra. Here there was slight gaping of the line of union, though fortunately the separation only extended about one-half of the thickness of the cicatrix. Not a drop of urine escaped. This point was brushed over with a solution of nitrate of silver, the catheter replaced, and morphia continued as before. The next day the catheter was removed, and ordered to be introduced only every two or three hours.

Fig. 2.



The treatment was thus continued until the third day, when it was discovered that a few drops of urine escaped per vaginam. The fourth day nearly all the urine escaped this way. An examination of the parts now revealed complete separation of the edges at the point above mentioned, the opening into the bladder being the size of a crow-quill. This was again brushed over with nitrate of silver, the application ordered to be repeated every second day, the object being more to keep the parts in a healthy condition, than in any hope of procuring closure by granulation.

Dec. 8th, some two weeks after the removal of the suture apparatus, the opening had attained the size of a No. 12 bougie, the cicatrix being still thick and firm on either side.

The patient now left her bed for the first time, the application of nitrate of silver being continued as before ordered. The fistule continued to enlarge, and at an examination some two weeks later, was found nearly its original size, and very much as first seen in other particulars.

In the month of April last, nearly eighteen months after my operation, I visited the Charity Hospital with Dr. Foster Swift, one of the attending physicians, and had an opportunity of examining the parts again. The patient stated that since I had last seen her she had undergone two operations, which were performed by one of the attending physicians, without any permanent benefit. Sims's simple interrupted silver suture, I

learned, was again employed, making five applications of this form of suture. I now found the opening somewhat narrowed from cicatricial contraction, the edges being still thick and unhealthy. Only about one-third of an inch of the outer extremity of the urethra remained, the balance having been entirely destroyed. A groove or depression three-fourths of an inch long occupied the former site of the canal; from the bottom of this the sides gradually ascended, and were hard and unyielding; no defined borders existed.

Remarks.—The occurrence of incontinence of urine in this woman two years after the birth of her last child renders it very conclusive that the injury did not result from this cause. In explanation, how much is to be ascribed to the circumstance of breaking a glass syringe in her vagina, I cannot say. *This* I do know, she had constitutional syphilis when I first saw her. Whether this resulted from a chancre in the site of the fistulous opening, or elsewhere, there were no means of ascertaining definitely. It was possible for the fragments of the glass syringe to have cut through the vesico-vaginal septum at the time of the accident, but then it cannot be reasonably supposed that such a large opening would have resulted. If injury did result to the vagina from this cause, the explanation most probable is, that a chancre already existed about the pudendum, and inoculation took place, followed by ulcerative perforation or destruction and incontinence of urine.

As to success, I must confess that when Prof. Taylor invited me to see the case, I was not at all sanguine. I undertook the operation as a duty, believing that the patient had everything to gain and nothing to lose by submitting to the trial. I have never met with a vesico-vaginal fistule occurring under such circumstances before. Some years previously I had treated a case of recto-vaginal fistule, the result I had reason to believe of syphilis. The opening in this case was quite small and situated just above the sphincter ani. After a long course of constitutional treatment, consisting mainly of iodide of mercury and iodide of potassium, I laid the perineum open to the fistulous track, as I am in the habit of doing in such injuries resulting from other causes; then paring off the edges of the latter, I closed the whole by the quilled suture. The success in this case was permanent, as observed two months after the operation. With this experience, therefore, I felt justified in making the attempt in the case in question. As to the result of the operation *per se*, it could not have been more satisfactory at the time the suture apparatus was removed. The slight gaping found in the line of union at the point named would have been of no consequence under ordinary circumstances, the closure on the vesical side being complete. There need not have been any fear of the slight fissure on the vaginal side not closing up by granulations. The failure was entirely due to constitutional impairment; and seeing this, I had no hope that any future efforts in the case would be attended with any

permanent benefit. The result of the two operations since fully confirms this opinion.

The almost complete destruction now of the urethra renders an operation and successful result quite impossible. Even could the tissues be brought into a relationship for reparation by plastic procedure, there is not the slightest probability that the bladder would have any power of retention.

A word now regarding the suture apparatus. Never in the whole course of my experience with the button suture have I found it put to so severe a test as in this case. The breaking of three of the sutures out of six (silver wire No. 26) furnishes the most conclusive proof of the fact. Two principles of this form of suture, regarded as of the greatest practical utility, were beautifully illustrated in the result of the operation. First, the non-cutting of the sutures under the greatest strain. Second, full transverse extension and support of the approximated edges of the fistule.

With frequent spells of vomiting and straining, and, on the fifth day, an action of the bowels, with expulsive efforts almost equal to labour-pains, there could be no question of the intense dragging upon the tissues included by the sutures. Notwithstanding the heavy strain upon the wire, sufficient to cause them to break at their doubled ends, the cutting of the tissues was so slight as scarcely to attract attention. Simple interrupted sutures, with the same strain, I am positively certain would have cut out long before the maximum strength of the wire had been reached—nay, had even the number of sutures been increased three, four, or five-fold the number used with the button, the ultimate result would have been the same, except that the size of the fistule would have been greatly increased from the actual loss of tissue. The included tissue in that event would have sustained such interference with its circulation and nutrition, by the almost uninterrupted barrier of sutures, and consequent traction upon them, that sphacelation or sloughing would have been inevitable. On the contrary, the button or splint did not require the sutures to be placed nearer than a third of an inch, allowing free circulation of blood between them. By this addition one-third of the strain upon the sutures was taken off or neutralized, hence the avoidance of cutting or sloughing of the included tissues from strangulation.

Now, as to the advantage of the transverse extension and support of the approximated edges of the fistule by the button, there can be no doubt, as shown in the result of this case. In the employment of the simple interrupted sutures, however thick they may be crowded in the tissues, there is always shortening of the line of the approximated edges under heavy strain, due to stretching and narrowing of the tissues outside of the sutures. This may be illustrated by stretching an elastic string, where increased length is secured at the expense of diminished width. In a round piece of buckskin the same thing is seen by stretching it in opposite

directions, shortening of the transverse diameter here being due to folding or puckering of the leather because there is no force to prevent it. So it is with the vagina, an elastic canal, it is capable of longitudinal extension, with corresponding narrowing, and *vice versâ*, transverse distension, with corresponding shortening; and what is true of it as a whole applies with equal force to either wall, or any part of the same.

In solutions of continuity, therefore, when the sides of the rent or opening are drawn together by the application of great force, as in the case of fistules, attended with much loss of substance, narrowing or contraction of the parts transversely takes place as shown by the puckering or fluting of the edges of the fistule.

The result of this is imperfect coaptation and consequent diminution of the chances of success. Doubling or trebling the number of sutures, it is true, may counteract to some extent this tendency to puckering, but at the same time, I repeat it, increase the risk of strangulation of the included tissues and consequent sloughing.

How then is this shortening and puckering to be prevented by the button? and why is it the interrupted sutures are made more valuable and effective by its addition? A satisfactory answer to these questions would necessitate a consideration of the mechanism both of the interrupted and twisted sutures, which can only be done by illustrations. This would far exceed the limit of these remarks. Suffice it to say, in the combination of these two forms of suture, under the name of button suture, all the *advantages* of each are realized. The independent action of the former, introduced upon a straight or curved line, and spaced so as not to interfere with the circulation, is fully secured under all circumstances. The transverse support and steadiness of the line of approximation of the latter are attained no less efficiently. Each suture introduced through the tissues is doubled upon itself, and passes through the holes in the button equally spaced, as so many bolts to be clinched upon the top of the button. Thus secured, the edges of the fistule are drawn into a groove on the under surface of the button out of a direct line, and thereby relieved of one-third of the strain or retractive force upon them. Each interspace being preserved, the longest diameter of the fistule, transverse or longitudinal, is maintained throughout the treatment with mathematical precision. However great the strain or tendency to recontraction (as after division of cicatricial bands), no strangulation of the tissues follows; no puckering or over-riding; no eversion, no inversion of the edges can take place. The extent and efficacy of the protection afforded the included tissues by the button could not be more beautifully illustrated than in this case, as shown by the two cuts. Fig. 1 represents a button two inches long, applied to the transverse diameter of the fistule, nearly the same length, and secured by perforated shot compressed upon the double ends of the six wire sutures, passing upwards through it. As additional security, the ends of the wire are turned down by the sides

of the shot after they were firmly compressed. As to the adaptation of the apparatus, nothing more could have been desired. Yet upon the fifth day, with all this apparent security, the doubled ends of the 3d, 4th, and 5th sutures broke beneath the compressed shot, in consequence of the extraordinary strain upon them. They broke in the order named. The button losing its support at these points, rose up at once in the form of an arch, from transverse contraction of the vaginal wall induced by longitudinal retraction of the same. The tissues beneath obeying the same law, followed the under surface of the button, forming with it a similar arch. In consequence, the new cicatrix was put upon the stretch, hence the slight gaping of it discovered upon the removal of the button on the eighth day. Fig. 2 represents the extent of the arching presented at the time of removal, as shown by the missing and loosened shot.

The shortening of the cicatrix, in a direct line, was half an inch. Had this accident occurred earlier in the treatment, it is possible that a total failure would have attended the operation, at all events to the extent of the broken sutures. As it was, the union being sufficiently firm when it took place, only the slight gaping previously described took place.

The many advantages of my operating chair, and self-retaining speculum, as illustrated in this case, can only be mentioned here. Suffice it to say, that without them, the completion of the operation under the circumstances, would have been impossible.

ART. XVI.—*Cases of Ovariotomy.* By WASHINGTON L. ATLEE, M. D., of Philadelphia, Fellow of the College of Physicians of Philadelphia, etc. (Reported by J. EWING MEARS, M. D., of Philadelphia, Member of the Pathological Society of Philadelphia, etc.)

CASE 210. *Monocystic Ovarian Tumour; Adhesions; three Tappings; Operation October* 9, 1869; *Incision two and one-half inches; Recovery.*—Mrs. F. F., of Springfield, Illinois, æt. 26, married, consulted Dr. Atlee October 6, 1869, and gave the following history: Menstruation began at the age of 15, and continued regular for three or four months; was then suspended for six months, and re-established by means of emmenagogues; was married at the age of twenty; has had one child, now five and one-half years old. She recovered well, and nursed her child twenty months; menstruation reappeared eighteen months after childbirth; was suspended again for five months, and recurring, remained regular up to the present time. The quantity has varied at times, being sometimes slightly clotted, and occasionally painful.

When sixteen years old, while driving, the horses ran off, and in jumping from the carriage she struck her left side, in the upper portion of the lumbar region, at which point a tumour appeared, but which soon after disappeared.

In May, 1867, she noticed a general enlargement of the abdomen. It was hard, but not painful on pressure, and continued to enlarge for six or eight months, when it subsided to a great extent. She attributes the subsidence of the enlargement to a discharge of blood and water from the vagina which occurred as the result of a sudden effort made in springing out of bed in fright. Although menstruating, she regarded herself pregnant, and feared miscarriage would follow the discharge from the vagina. The discharge ceased in about two days, and in a short time she began to increase in size, and in two months was as large as she was at the time of the accident. The idea of pregnancy was not abandoned until ten or eleven months had expired, when she was treated for ascites.

February 10, 1869. Tapping was first performed, removing two and one-half gallons of fluid, the colour and consistence of stationer's mucilage, weighing ten pounds to the gallon. Diuretics and hydragogues were still administered under the belief that the disease was ascites. Notwithstanding the employment of drastic cathartics, and other active remedies, the fluid reaccumulated, and tapping was again resorted to, April 22, removing one and one-half gallon of fluid of the same character as the first. In June, Dr. B. M. Griffiths, of Springfield, was consulted, and pronounced the disease ovarian dropsy. Dr. G. performed tapping on the 27th of July, removing two gallons of fluid, somewhat lighter in colour than that evacuated on the previous occasions, but thick, stringy, and albuminous. After tapping, the fluid usually reaccumulated in about six weeks so as to render its presence perceptible. When the abdomen is distended with the fluid she suffers from indigestion and vomiting, which are always relieved by tapping. After the evacuation of the fluid the abdomen became flat, and the cyst could be easily felt through the relaxed walls; no secondary growth could be detected. After the last tapping, Dr. Griffiths applied compresses and a tight bandage, with a view to prevent refilling of the cyst.

October 6. Examination to-day shows the abdomen distended to a size larger than that of a woman at full period of pregnancy, with all the signs indicating the existence of a monocystic ovarian tumour, filled with a dense fluid. The pelvis is free, the os and cervix are intact; the sound enters two and one-half inches, and the uterus is movable. The patient is somewhat reduced in flesh, but is in tolerably good health.

9th. Ovariotomy was performed, the following gentlemen being present: Drs. Drysdale, Burpee, Mears, Keen, Hoffman, of Philadelphia, J. H. Tinkham, U. S. N., Wikoff, of Princeton, N. J., and Mr. Street, medical student. The anæsthetic mixture (ether two parts, chloroform one part, liquid measure) having been administered, an incision, two inches in length, was made in the linea alba, midway between the umbilicus and pubis, through the parietes of the abdomen down to the cyst. The abdominal walls were unusually thick, containing but little adipose tissue, and very vascular. The cyst was punctured, and two and one-half gallons of thick gelatinous fluid removed. Two slight adhesions, one omental and one parietal, existed, which were readily detached, and the cyst was extracted through the opening, which was enlarged one-half inch in order to facilitate its removal. The pedicle was broad, thick, and vascular, and was encircled by the Fallopian tube. A coil of intestine was attached to its left border; this was detached, a ligature applied to the pedicle so as to condense it, the clamp adjusted, and the tumour separated. Considerable hemorrhage occurred from the incision and omental adhe-

sion; the latter was inclosed in a ligature and secured between the edges of the upper part of the incision by a pin. A large isolated omental vessel was knotted and returned to the abdominal cavity. The pelvic cavity was cleansed, and the incision closed by two iron wire sutures, the compress and bandage applied, and the patient placed in bed in less than twenty minutes from the time the operation was commenced.

The tumour was monocystic, and consisted of the left ovary; the walls were thick, and with the contents weighed about twenty-six pounds.

No nausea or vomiting occurred, and the patient made a rapid recovery, returning to Springfield in two weeks after the operation.

Dr. Mears reported the following as the result of an examination of the fluid.

Colour pale-yellowish, very viscid, gelatinous, consistence that of thick syrup. Specific gravity 1010; albumen about 75 per cent. The microscope showed masses of granular cells, epithelial scales, and blood-globules.

CASE 211. *Polycystic Ovarian Tumours; Omental and Mesenteric Adhesions; one Tapping; Operation, October 29th, 1869; Incision six inches in length; Death on the 5th day.*—Mrs. T. C., æt. 51, married, native of Ireland, consulted Dr. Atlee September 28th, 1869. She states that menstruation began at the age of sixteen, and, with the exception of the year succeeding her arrival in this country, she was regular until the age of 49, when the menses ceased. The cessation of the menses was followed by hemorrhoidal hemorrhage to a very great extent, and which continued more or less until January, 1869. She has been twice married, the first time at 26, and the second at 37 years of age. By the first husband she had one child, and one by the second also, now nine years old. She suffered miscarriage once.

She states that she first noticed a swelling in the lower part of the abdomen, inclining to the right side, in March last. It did not present itself in the form of a distinct tumour, but was a diffused soft swelling, and increased rapidly in size. Before the abdominal enlargement occurred, she was a very large fat woman, weighing 170 pounds; has recently lost flesh very rapidly, and complains of excessive flatulency. The measurement round the waist is 28 inches, round the abdomen, in a line with the umbilicus, 50 inches, from the sternum to umbilicus 15 inches, from umbilicus to pubes 24 inches, and between the superior spinous processes of the ilii 31 inches.

The abdominal enlargement is very great, the protuberance being much greater below than above. Below the umbilicus the walls of the abdomen are œdematous.

The characteristic signs of ovarian dropsy are well marked; one large cyst can be distinctly traced filling up the abdominal cavity, and containing in its left wall a polycystic mass; the os tincæ is thrown back and is roughened. The sound enters one and a half inches and comes away stained with blood. The pelvis is free.

September 30th, 1869, in company with Dr. Burpee, Dr. Atlee tapped the patient and removed thirty-six pints of olive-coloured, albuminous fluid. Owing to the œdematous condition of the abdominal wall the short trocar used in tapping, evacuated only the ascitic fluid contained in the cavity, and it required the largest trocar to penetrate the cyst and evacuate its contents.

A specimen of the fluid was subjected to microscopical examination by Dr. Drysdale, and pronounced ovarian in character.

The fluid reaccumulated very rapidly, and the patient urgently requested operative interference. Although the case was regarded a fair one for operation, still the circumstances of the patient were such as militate against a successful result. She was in poor circumstances, occupying a room on the lower floor in a small street, and unable to secure appropriate care and nursing. As there was no hospital or charity to which she could be sent, and command Dr. Atlee's services, he felt it his duty, unfavourable as the surroundings were, to render the aid solicited.

Oct. 29, 1869. Ovariotomy was performed; Drs. Aulick, of Virginia, Grove, Hoffman, Mears, and Schofield, of Philadelphia, being present. The patient being fully anæsthetized, an incision, four inches in length, was made in the linea alba down to the peritoneum. On incising the peritoneum large quantities of ascitic fluid escaped; introducing the finger, numerous long and tough bands of adhesions were broken up, discharging ascitic fluid, which had been retained in cells or pockets formed by these bands. Perforating the large cyst with the trocar, several quarts of gelatinous fluid were removed. The incision was now extended two inches, and the hand introduced to ascertain the nature and extent of the adhesions; these were found to consist of extensive and firm parietal, intestinal, and omental adhesions; the parietal and omental attachments were severed, and the tumour extracted still attached to the mesentery and intestines; these were separated from the tumour by dissecting off the outer layer of the cyst-wall, and leaving it attached to the mesentery. The pedicle was very thick and short; the clamp was applied close to the uterus, and the tumour was detached.

During the operation the intestines were extruded by the effort made in vomiting. At the point of attachment to the tumour there was a space, about two and a half inches in diameter, from which a general oozing of blood occurred. The bleeding vessels, eight in number, were secured by silk ligatures, the same kind as employed by Mr. T. Spencer Wells, and which had been presented by that gentleman to Dr. Atlee; these ligatures were cut off close to the knot, and the intestines carefully returned to the abdominal cavity. The portions of omentum which had been detached from the tumour were retrenched, divided into three fasciculi, and secured between the edges of the wound by suture; the incision was closed by the iron-wire suture, and the patient placed in bed.

The tumour consisted of the right ovary, was polycystic, and weighed about forty pounds.

The patient reacted well from the operation, and, with the exception of a good deal of nausea and vomiting, progressed very favourably for the three succeeding days. On the fourth day she began to sink, and died from exhaustion on the fifth day. The inefficiency and disobedience of the attendants, and the comfortless circumstances surrounding the patient, contributed largely in producing the unfavourable result.

Dr. Mears made the following report of an examination of the tumour and its contents:—

"The tumour was found on examination to be polycystic, as diagnosed prior to the operation, consisting of one large cyst, with numerous secondary cysts, of various sizes, projecting from its internal surface. The contents of the secondary cysts varied in character—the larger containing a mass of granular adipose matter, the smaller usually containing

the viscid, gelatinous fluid which filled the large cyst. The sac was of the usual density and firmness, except at those portions which covered the adipose secondary cysts. At these points it was very friable, and broke down under slight force. Microscopical examination of the contents of the larger secondary cysts showed the mass to be composed of granular corpuscles, with numerous oil-globules. The fluid contents were dark greenish in colour and very viscid. The specific gravity was 1010+; an excess of albumen was present, about twenty-five per cent. The microscope revealed the presence of granular cells, blood-corpuscles, oil-globules, and epithelial scales."

Remarks.—In the above case it will be noticed that the ligatures applied to the vessels of the mesentery were cut off close to the knot. Although this method is recommended and practised by some of the best ovariotomists, Dr. Atlee does not give it his sanction nor adopt it from choice; he always prefers to bring the end of the ligature outside, so that it can be removed. In the case above described, however, the ligature, if brought outside, would have traversed the abdominal cavity from the back part to the front, through coils of intestines, thereby endangering strangulation. As the less of two evils, it was determined to cut them short. He regards it improper to allow a foreign body to remain in the cavity of the peritoneum, as it is impossible to predict the trouble which may occur from its presence—it should never be placed there from choice.

CASE 212.—*Polycystic Ovarian Tumour, complicated with Ascites; Inveterate Adhesions; Tapped forty-three times—Operation Nov. 4th, 1869; Incision five inches in length; Death on the fourth day.*—November 3, 1869, Mrs. M. of Newcastle, Lawrence Co., Pa., was seen by Dr. Atlee in consultation with Dr. M. P. Barker, of that place. She is forty-eight years old, married, and has borne two children, the youngest eight years of age. Menstruation began at the age of seventeen, was regular for some time, and afterwards became profuse and clotted.

Three years and a half since she first noticed an abdominal enlargement which increased very rapidly. The first tapping was performed April 14th, 1866. Between this time and October 23d, 1869, when she was last tapped, the number of tappings amounted to forty-three, and the estimated quantity of fluid evacuated to over two hundred gallons; the largest quantity of fluid taken at any one time was six and a half gallons. Soon after the first tapping she began to emaciate. Latterly paracentesis has been accompanied and followed by great exhaustion, and the last time death seemed inevitable.

The patient was confined to her bed greatly emaciated and anæmic, but in good spirits, with a pulse exceeding one hundred and twenty, and very feeble. Although tapped only eleven days before, she had again filled up to the same size. Examination showed the abdomen uniform in shape, rather pendulous, its surface coursed by enlarged veins, and fluctuation distinct. The characteristic signs of abdominal dropsy were well marked. Displacing the fluid by sudden pressure there could be detected a large polycystic tumour occupying a central position; hard masses were felt at different points. The upper portion of the large tumour was slightly movable, the lower portion was fixed and immovable.

The os and cervix uteri were pushed forward, the latter about three-

quarters of an inch in length and normal; the body of the uterus is lost in a mass of indurated tissue, which is part of the central tumour. The whole is fixed and immovable. The sound enters the cavity of the uterus to the distance of two and three-quarter inches.

Diagnosis.—Polycystic ovarian tumour, complicated with ascites, and very grave pelvic adhesions, involving the uterus.

Prognosis.—Very unfavourable.

November 4th, 1869, ovariotomy was performed. The following-named gentlemen were present: Drs. M. P. Barker, D. Leasure, Jno. W. Wallace, J. S. Cossitt, J. B. Reinholdt, Peebles, and Wood, of New Castle, and Dr. Zimmerman, of Mt. Jackson.

The patient being under the influence of the anæsthetic mixture, an incision, one inch in length, was made in the linea alba, opening the abdominal cavity, and permitting the escape of several gallons of very transparent dark yellow-coloured fluid tinged with blood. The evacuation of this ascitic fluid reduced greatly the size of the abdomen. A large oval mass occupied the centre, with projections from it, particularly on the left side, extending as high up as the left hypochondrium. The finger was introduced into the abdominal cavity, and a careful survey made of the tumour and its attachments. It was found adherent to the parietes and surrounding viscera by extensive and firm bands. The pelvic cavity was occupied by the lower portion of the tumour, which was firmly attached by a sheet of dense adhesions to the brim of the pelvis, extending from one superior spinous process to the other. The uterus was found imbedded in this mass. The multilocular character of the tumour could be distinctly made out, its surface presenting large masses of hydatid-like bodies, with abraded granulated botryoidal surfaces, resembling uterine hydatids, and which no doubt exuded the fluid contained in the abdominal cavity. Two of the largest cysts were now punctured, giving exit to several pints of opaque, mucilaginous fluid. Another exploration was now made, and it was determined that the removal of the tumour could be effected. The incision was enlarged to the extent of five inches, the hand introduced, and the parietal and visceral adhesions detached. The omentum was found rolled up, forming a cord-like mass, as large as the middle finger, and traversing the anterior surface of the tumour, was attached to the brim of the pelvis. The upper portion of the tumour was gradually detached and turned out of the abdominal cavity. On inverting it, and exposing its posterior surface, the uterus and its appendages were found completely imbedded in the lower portion; this organ was liberated by enucleation, the pelvic attachments were broken up, and the tumour was removed. The pedicle, which was large and dense, was transfixed by a double ligature, secured and divided. Considerable oozing, venous in character, took place from the abraded surface of the pelvic cavity; five ligatures were required to control the hemorrhage which came from the posterior surface of the uterus; the ends of the ligatures were brought out of the external wound. The cavity was carefully cleansed, the clamp was applied to the pedicle, and the incision was closed by six wire sutures. Owing to the extensive adhesions it was impossible to determine the condition of the other ovary.

The ascitic fluid measured six and a half gallons; five of the cysts of the tumour were evacuated, the appearance of the fluid differing; the fluid of one of the cysts was like that contained in the abdominal cavity.

The weight of the tumour was estimated to be fifteen pounds.

Six or eight ounces of blood were lost. The patient bore the operation

well, requiring occasionally some stimulation. On the day following the operation reaction was fully established. She died on the fourth day from exhaustion.

Dr. Atlee makes the following remarks upon the origin of the coexisting ascites in this case, and in others of a similar character:—

Remarks.—The above case is one of peculiar interest in several points of view. It belongs to the second class, as death was imminent before the operation. The point, however, to which I wish to call particular attention is the character of the tumour and its association with ascites. By reference to the *American Journal of the Medical Sciences* for January, 1844, a case is reported by my brother, Dr. John L. Atlee, of Lancaster, Pennsylvania, with a wood-cut representing an ovarian tumour of the description referred to. I was associated in that case with my brother, and took occasion then to differ from him in regard to the cause of the coexisting ascites. He "*attributed the ascites to the functional derangement of the abdominal and pelvic viscera and bloodvessels, occasioned by the presence of the tumours.*" My view was that the hydatid-like surface of the tumour threw off the fluid into the cavity of the peritoneum, where it accumulated and constituted the ascites. This is an interesting point in pathology. I have had this opinion corroborated by further experience, as several such tumours have presented themselves, and in every instance ascites, to a large extent, has coexisted. This peculiarity of an ovarian tumour, in my opinion, does not depend upon the presence of true hydatids, but arises in the following way: The fibrous coat of an ovarian tumour sometimes gives way over a secondary polycystic mass, which latter then develops itself, mushroom-like, exterior to the general cavity of the original cyst, and becoming an exhaling surface, and throwing out fluid constantly into the cavity of the peritoneum; the fluid, thus thrown out, containing the cells usually found in the fluid of ovarian tumours, as has been ascertained in one instance by the microscope. I have, also, observed the same hydatid-like appearance on the interior of the parent cyst, where the inner coat of the tumour had become abraded.

In all similar cases to the one just reported we are likely to have a large accumulation of fluid in the peritoneal cavity, while it is very rare to meet large quantities of ascitic fluid in ovarian tumours of the ordinary character.

TRANSACTIONS OF SOCIETIES.

ART. XVII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1870. *March* 16. *Gunshot Wound of Lung.*—Dr. JOHN H. BRINTON read the following record, and introduced the patient.

J. W. B., E. Co., 57th Pennsylvania Infantry Volunteers, æt. 31, shot at Fair Oaks, May 31, 1862, by a ball from a sharp-shooter in a tree, at about 80 to 100 yards distance. The colonel (Campbell), who was shot at same time, and from same source, was hit by a conoidal ball, which was removed from his arm. It is probable that Barnes was also hit by a conoidal ball. The wound of entrance, the patient says, was like a clean cut, near the centre of the base of the scapula, the direction of the ball was downwards and forwards, and the ball lodged apparently behind the cartilage of the 7th or 8th ribs, about two inches from the sternum on the right side.

The patient states that at the time of injury, he felt as if he had been "hit hard on the back by a stick;" he also felt as if he was hurt or torn anteriorly behind the cartilages of ribs of right side. At the *moment* of injury, there was *no* shock, but instantly bloody expectoration, not copious, only two or three mouthfuls, *dark* red, not bright red. The dyspnœa great, but he did not faint. In a *minute or two* after being hit, he suffered from nausea, and some shock, but there was no vomiting. He did not fall. He was not able to lie down, on account of dyspnœa, but was able to sit. He rode, sitting on front seat of ambulance, to Savage's Station, was there placed on a chair, taken to James River, and then on boat to Philadelphia, where he was carried from depot to St. Joseph's Hospital (fully two or two and a half miles) on a furniture car, but during all the time from the day of injury to June 16th he did not lie down or leave his chair, the same one on which he was placed at Savage's Station. Immediately after being hit (within an hour), great emphysema from the jaw down to the pelvis on right side occurred, for which he was bandaged at Savage's Station.

June 4th, 1862, admitted to St. Joseph's Hospital, Philadelphia, from which he was discharged on the 16th of June, the wound having healed. He re-entered the hospital on the 24th of July, and was then treated for inflammation of the right pleura, and was discharged from the hospital early in December, 1862. Since that time, there has been constant pain in the right chest, aggravated by exposure. He married in 1862, after leaving the hospital in Philadelphia.

Since December, 1862, he has tried railroading, but found the exposure too great. Shopkeeping was too confining; could not continue as a street-car conductor, from inability to speak at times, consequent upon

spasmodic action of diaphragm. Is now (March, 1870) the proprietor of a book-stall or newspaper stand in the open air. He now weighs about 121 pounds, having fallen to this from 150 pounds, his former weight.

He has hæmoptysis about twice a year, amounting to a few small mouthfuls of blood during the day, for two or three days. He has now such an attack. Has not had one for six months previously.

Examination of Chest by Dr. J. H. Brinton and Dr. S. W. Mitchell.—Measurements: Right chest, at level of inferior angle of scapula to middle line, one inch below right nipple, eleven inches. Corresponding measurement left side, 10¼ inches.

There is pain on pressure, on right side of spine, from 3d to 6th vertebra, between vertebral spines, and posterior scapular margin. The wound, which is perfectly cicatrized, is on a level with the 5th vertebra, and about ⅞ of an inch from the posterior margin of the scapula. Great tenderness over all the muscles, between the posterior margin of scapula and vertebræ, and up to a point 2½ inches above cicatrix, and ½ below the middle of spine of scapula. Hyperæsthesia of surface in an area extending from 1 inch below to 2 inches above scar.

A very tender spot was detected, 5 inches below the posterior angle of the axilla, between the 7th and 8th ribs. Tenderness was also evident 2 inches in front of that point, and extending from the 5th to the 8th ribs.

On the front of the chest, tenderness on pressure commenced one inch above the right nipple, extending to the middle sternal line, and downwards as far as the margins of the costal cartilages. The extreme of tenderness was marked by a line drawn obliquely downwards from the right nipple to about the anterior margin of the 8th costal cartilage. General hyperæsthesia of surface existed over this tender region.

The patient experiences pain when he bends his body forwards; and when he wishes to seize an object on the floor, he crouches, bending both knees alike. He himself believes that the ball lies at the front and lower part of the right chest, and that it shifts when he attempts to laugh or sneeze, or bend forwards.

That some unknown lesion probably exists at the point indicated, we may readily conceive, and we are inclined to think that a sac of false membrane exists immediately behind the costal cartilage, and in the vicinity of the diaphragm; and that most probably this sac contains the ball; we think moreover that the sac is of some size, and that the ball is loose.

Auscultation.—*Anteriorly* the inspiratory and expiratory sounds were heard throughout both lungs, but they were very short and somewhat rough, owing perhaps to their speed. There was no loss of respiratory space at the site of the pain below the right nipple, nor was there any unusual dulness thereabouts.

Transmitted heart sounds were heard about 2 inches below the right nipple, marking, and to a certain extent confusing the respiratory sounds.

Percussion over the right lung anteriorly, even when practised with the utmost gentleness, produced great pain and dyspnœa; especially was this the case when percussion was made over the swelling at the costal margins, the supposed locality of the ball.

The upper part of the right lung was clear on percussion, shading down

to the ordinary level of liver dulness, and becoming more dull over the costal swelling.

Posteriorly, respiratory sounds were heard over both right and left lungs, more distinctly, perhaps, over the left lung.

Dyspnœa.—This has been present in the case from the time of injury. It is greatly increased by certain positions. Thus he cannot sleep or lie upon his side; if he does so he very shortly awakes with violent paroxysms of dyspnœa. He is obliged, therefore, to sleep on the flat of his back, with his head low. He rarely sleeps well, and is awakened by the slightest touch, after which he sleeps more uneasily. Rests better if the preceding day has been a quiet one, free from excitement. If he laughs especially heartily, violent dyspnœa amounting almost to suffocation is induced, followed by great prostration.

Respiration.—The marked feature in Barnes's case is the rapid respiration. Usually when at rest it is a little slower than the heart beat, sometimes it is almost synchronous with the latter. On exertion the respiration rises rapidly, passing the heart pulse. Thus:—

1870, *Feb.* 27.—*Patient sitting quietly in his own room.* Pulse 74; respiration 66.

March 3.—*One hour after supper*, having walked about a mile, and examined in *standing* posture. Pulse 90; respiration 76 to 78. At same time examined in *recumbent* posture. Pulse 78 to 80; respiration 64. On same evening the patient was directed to run twice up and down one short flight of stairs. Then pulse 100; respiration 108 or 110.

13*th.*—The respiration and cardiac movements were synchronous, viz., 78. A little exercise sent the pulse to 95 and the respiration to 125.

14*th.*—After a short walk, pulse 100; respiration 120. From the date of the wound until March, 1863, his breathing was almost thirty times to the minute. At that time over-exertion caused the present rapid rate.

Prior to his being wounded this patient was an accomplished diver, and could hold his breath for over a minute; now he can hold it only for a few seconds. When he does so the heart-pulse becomes somewhat slower, a proof of the integrity of the pneumogastric nerve.

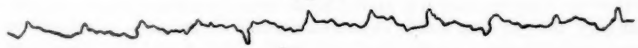
Heart.—The heart does not seem to be injured seriously by the long-continued speed of the respiratory movements, at least its valves have not suffered, although the first sound is often faint, as if there were a feeble left ventricle. This would seem likely to be the case from the appended sphygmograms, taken by Dr. Mitchell, and which indicate a feeble heart and a relaxed arterial tension.

Tracing of sphygmogram of Barnes's pulse when he is quiet.

Fig. 1.

Tracing of sphygmogram of Barnes's pulse when exhausted.

Fig. 2.



A marked feature in B.'s case is the peculiar facial spasm which occurs some fifty or sixty times a day. During each one of these spasms the

lower jaw is pulled down once or twice, and respiration and speech are arrested. Each spasm commences with pain over the hyperæsthetic space in front.

Right arm.—The loss of power in the upper extremity of the right side is very evident. The patient states that immediately after being shot he dropped his gun, that he was not able to grasp it, and that for six months he could not elevate his right arm. He states "that the shoulder was paralyzed."

At present he cannot raise the arm above the level of the shoulder, and the grasp of the right hand is very feeble, contrasting strongly with that of the left hand, which is remarkably vigorous for one of his build.

The want of power in the right hand points to the probability of its having been due to a reflex paralysis originating in shock at the time he was wounded. Indeed there seems to have been sudden loss of power at the moment, and no amount of disuse possible to a man who has to do even light work will account for the vast disproportion between the strength of the two forearms.

I ought to add that we found it impossible to make as perfect a report of this case as the interest demands, because of the terrible exhaustion and nervousness which are brought on by percussion or even by pressure of an ear upon the sensitive regions of the right chest.

Dr. JOHN H. BRINTON counted the pulse and respiration in the presence of the Fellows, and found them respectively 96 and 112 in the minute. He had never before met with such increase in respiration without corresponding increase in the pulse.

Dr. JOHN ASHHURST, JR., thought he observed that when the patient spoke the rapid diaphragmatic action subsided. He seemed able to hold his breath for some time when the motor force was directed to the muscles of phonation.

Dr. BRINTON stated that the patient always held his breath for 10 or 12 seconds during the facial spasms.

Dr. S. WEIR MITCHELL said that the first point of interest in this case was the great weakness of the right arm. Barnes had at first attempted to carry his musket off the field, but was obliged to drop it repeatedly, and finally to leave it. After that period there was a good deal of disuse of the arm. No remarkable difference can be observed in the muscular development of the two arms, not enough to account for the difference in power. The grasp of the left hand is vigorous, while that of the right is singularly feeble. Mere disuse would not explain the vast disproportion. He was therefore inclined to believe, although he had reached the conclusion somewhat doubtfully, that the impairment of power was a reflex effect. As to the cause of the rapid breathing, he was somewhat undecided. There was no considerable loss of lung tissue to render a great degree of supplementary action necessary. The explanation, then, must be, that some unusual impression from without was conveyed to the nerve-centres, so giving rise to the frequent respiration, or else that the nerve-centres themselves were so affected as to be over-susceptible, and respond inordinately to the ordinary influences. It might be that the retained ball was acting upon healthy nerve-centres, or, more probably, that the morbidly excitable nerve-centres made excessive response to the normal respiratory excitants. Nor would this seem very extraordinary if the Fellows would recall the usual phenomena of shock after accidents, where sometimes the heart is enfeebled, and sometimes

the whole muscular system, as where single limbs become absolutely palsied. It was therefore not impossible that the shock of a grave wound of the respiratory organs might occasion conditions of the related nerve-centres competent to occasion such a rate of breathing as we see in the present case.

Dr. J. CHESTON MORRIS asked if the electro-muscular excitability had been tested.

Dr. S. WEIR MITCHELL replied that it had not been possible to do so. Even auscultation and percussion of the heart and lungs produced excessive agitation and fatigue. On one occasion the patient lay for more than half an hour in a state of alarming prostration, consequent upon a very gentle examination. He hoped, however, to investigate this portion of the case more fully at another time.

Dr. WM. PEPPER asked if it were possible to form any other conclusion as to the course of the ball. It entered so far from the vertebral column that, had it passed downward, forward, and to the right, it would have missed the branches of the sympathetic nerve, and any large branch of the pneumogastric. Could it have passed inward and downward?

Dr. JOHN H. BRINTON replied that he had no means of determining the question except by drawing an imaginary line from the point of entrance to the area of extreme tenderness. Barnes had felt the stroke behind, and then a sensation of tearing at the spot in front. As he was shot by a sharpshooter from a tree, the ball had certainly ranged downward, possibly a little inward. Extreme dyspnœa being produced by mere inspection, it had been impossible to make any accurate physical examination.

Dr. WILLIAM PEPPER called attention to the very peculiar muscular spasms which the patient presented, and which, it seemed to him, were strongly in favour of Dr. Mitchell's view that the dyspnœa was due to reflex irritation of the pneumogastric nerves. Thus these spasms affected the muscles of the face and of the larynx. The patient further states that he occasionally is seized, while eating, with spasm of the pharyngeal muscles, or of the upper part of the œsophagus, preventing deglutition and causing regurgitation of the food. He also suffers from spasmodic aphonia, so that at times he is obliged to wait a full minute before being able to begin a sentence. It would thus seem that branches not only of the pneumogastric (as the recurrent laryngeal), but also of the facial, the hypoglossal, and the spinal accessory nerves were affected in the production of these muscular spasms. When it is borne in mind that Mr. Lockhart Clarke has demonstrated a close anatomical relation between the nuclei of origin of these nerves in the medulla oblongata, it may readily be understood that a peripheral irritation of branches of the pneumogastric nerves (as of their pulmonary branches) might excite a reflex irritation of the other nerves mentioned, and thus explain the occurrence of such spasms as were presented by the patient.

Dr. H. C. WOOD referred to the facial spasm being preceded by pain in the tender portion of the chest, and suggested a resemblance of this phenomenon to the epileptic aura.

Dr. CASPAR MORRIS said he had frequently observed, in long-continued cases of paralysis, that the act of gaping was accompanied by elevation of the arm. He thought the phenomenon might group itself with some of the symptoms in Barnes's case.

Dr. EDWARD HARTSHORNE remarked that the case in its general characters, reminded him of chorea, not only as it occurs in children, but also as seen after gunshot wounds.

Ulceration of the Skin as an Effect of the Use of the Bromides.—Dr. S. WEIR MITCHELL read the following paper: Every physician is aware that these salts may cause an eruption of small boils or pimples, which appear in successive crops—sometimes between the shoulders only, and sometimes there and on the face—more rarely they are generally disseminated.

In the cases of women this constitutes now and then a grave objection to the use of bromides, except in very serious disease, where the complexion is no longer an object of moment. In epilepsy I have now and then had to lessen my doses or lay the drug aside for a few days, on account of this evil; but save in the two instances about to be reported, the skin disease caused by bromides has never interfered practically with their continuous use.

A lad at the age of 10 began by having the lesser epilepsy, caused apparently by gastric disorder. These attacks gradually increased in number, and after two years he began to have convulsions, which now for several years retain the same character. At intervals of from nine to fifteen days he has, within forty-eight hours, two or three attacks. They resemble in all respects the typical fit, save that he does not bite his tongue. The lesser seizures are numerous, and the memory has been seriously impaired. Several years ago, I began to give this lad bromide of potassium, with an excellent effect in lessening the number and force of his fits, although it never fully held them in check.

After some nine months of its use, in twenty to thirty gr. doses, thrice a day, the boils, which had begun very early to plague him, became larger and more abundant, not only on the face but also on the scalp and extremities. His parents shared my desire to get out of the bromide its full value, and it was therefore agreed to push it. This resulted in certain of the boils enlarging and leaving a deep ulcer with everted edges and with a strong tendency to accumulate pus and epithelia in the shape of a conical cover causing it to resemble closely rupia. At one time he had nine such ulcers, none less than an inch in diameter and one or two of double this size, while the boils were numbless and painful. At this time I succeeded in persuading the patient and his near relatives that the medicine was the sole cause of this annoyance, and it was therefore lessened; but not until he got down to thirty grains a day did the ulcers begin to heal. Some months later, he being in the country, away from me, they were tempted to give the bromides once more in full doses. Precisely the same result occurred; but when he was brought in this pitiable state to me, I endeavoured to discover how the bromides could still be given without causing boils, for on this latter occasion the ulcers formed within two months and under very moderate doses. It was clear enough that the boils were only the small beginnings of a mischief which ended in the ulcers, so that to save from one would enable us to escape the other, and in this point of view the appearance and enlarging of the boils became a sufficient and early test.

I should add that bromides were always of great use in this case until under the influence of multiplying ulcers, the general health began to fail, and the fits to increase.

I began by making the functions of the skin more active with warm baths, flesh brushes, and other means, with always great attention to the bowels, and finally with various diuretics, both vegetable and mineral. Then I

tried tonics, such as bark and iron. The other means had merely failed, but the iron, especially its most efficient form, the tincture of the chloride, enormously increased the attacks, as it is very prone to do. Next I employed manganese, zinc, silver, bismuth, all alike in vain; nor was any local plan of treatment more fortunate. Finally I rang all the changes upon the combinations of bromine, using them before or with or after meals. The bromides of potassium, sodium, and ammonium all alike occasioned these hideous boils and ulcers. All of the three salts acted favourably upon the fits, the ammonia salt requiring much larger doses, and being apparently not quite so sure in its effects. I then began to employ, with but faint hope of success, combinations which are not in common use, such as bromide of calcium, of magnesium, and even bromine itself in solution. None of the latter agents surely lessened the number or force of the fits, so that there was no reason to continue them long enough to tell whether or not they would increase or keep open the ulcers. So far as I can now recall, the bromide of lithium was the last used of the bromides. It caused new or increased the old ulcers, and had the usual happy influence upon the fits of the other bromides of fixed alkalies.

Until lately, I supposed that the above case, of which I have related enough to serve my purpose, stood alone as to the possible extent of the influence exerted by bromides upon the skin. Two months ago, however, I saw a young man from Northwestern Pennsylvania, who, on account of an epilepsy of ten years' duration, took, without advice of any physician, a quack preparation which I have found to contain about 25 grains of bromide of potassium to each dose. Finding that he obtained but slight relief and despite increasing boils, of the origin of which he knew nothing, he doubled the dose and took for at least a month, 50 grains thrice a day. When I saw him, he had above the right knee an ulcer two inches wide, and through neglect, covered with a conical cap of dried pus, so as to look like rupia. On the same leg were two ulcers, and on the left arm and back of neck were three. It may seem incredible that the only physician in his neighbourhood, to whom he showed these ulcers, and related his case and treatment, should have considered his case as one of syphilis. Upon withdrawing the bromide, these ulcers healed with the most astonishing rapidity.

Excepting these two cases, I have seen no instance of bromic ulcers, although, like others, I have met with many cases of such eruptions of small boils, as to make it advisable to lessen or stop the offending drug. On the other hand, in some epileptics the largest doses of bromides cause only slight acneous eruption between the shoulders, while in a very few no therapeutic device will lessen or prevent the most enormous outbreak of boils. So far, no device has aided me to solve this problem. In France one observer at least has contended that the sodium bromide is less productive of boils than the others. I am positive, however, that this is not the case, and that we have no means as yet of giving bromides with a certainty of not causing eruptions.

Dr. JOHN ASHHURST, JR., said that the most obstinate ulceration which he had ever observed after any hypodermic injection, followed the subcutaneous use of fifteen grains of bromide of potassium. The syringe was entirely clean, and there was, therefore, every reason to attribute the ulceration to the irritation caused by the substance employed. The

remedy had been given in this way twice, because of tetanic spasm which prevented deglutition. The ulcer persisted until death occurred, three weeks subsequently. (See *Proceedings Pathological Society*, in *American Journal of Medical Sciences*, July, 1866, pp. 130–133.)

Dr. S. W. MITCHELL had not used more than five or ten grains of bromide of potassium hypodermically. He had given bromide of lithium in the same way, and had seen some threatenings of inflammation, but only once a small abscess.

Dr. WILLIAM PEPPER suggested that individual differences in the irritability of the skin might determine the production or non-production of the cutaneous boils and ulcers. In the Epileptic Ward of the Insane Department of the Philadelphia Hospital, containing nearly two hundred patients, bromide of potassium was used to a very large extent, and the amounts taken at times during the most severe paroxysms were very great; yet the eruptions produced were usually too trifling to attract notice. Spontaneous complaints from the patients were very rare, and examination discovered acne and boils in but a moderate proportion of cases.

Dr. JAMES DARRACH had had under care a child which suffered from attacks of *petit mal* during teething. Two or three attacks occurred each week. They were fainting fits, not convulsions, and were excited partially by resistance to its will, as by putting it into the bath, or by taking things from him; but also occurred spontaneously. He gave bromide of potassium in doses of five to ten grains three to four times a day, and continued the remedy for eighteen months or two years. No eruption was produced; but fearing an injurious influence upon the general nutrition, he was careful to suspend the medicine occasionally for short periods, in order that the secerning organs might clear the system. The child had been entirely well for a year after the completion of teething, but since the commencement of the warm weather, had suffered two or three times with paroxysms of irritable temper. Sea-shore life had an excellent effect upon the little patient. He inquired whether the emunctories were active in the cases of ulceration reported by Dr. Mitchell. Also whether epileptics could take large doses of the bromides with impunity.

Dr. MITCHELL, replying to Dr. Darrach's question, "Were the emunctories in good condition?" said he knew nothing to the contrary. He thought that in private practice careful examination would seldom fail to find an eruption of acne between the shoulders, after the administration of the bromides had been continued for two or three months.

Dr. J. CHESTON MORRIS thought that the facts stated by Dr. Pepper might be harmonized with the existence of the eruption, as observed by Dr. Mitchell; moderate doses were thrown off by the kidneys and skin, irritating the latter structure, while the large amounts probably passed away through the bowels. He had seen an eruption from the bromides most frequently in those who bathed often, and whose skin was thus overstimulated and particularly liable to inflammation. He thought the true mode of relief was to increase the urinary secretion and relieve the skin.

Dr. WM. PEPPER observed that this explanation would apply only to the exceptional cases in the Philadelphia Hospital, where unusual amounts of the drug had been administered for short periods, and could not account for the absence of the eruption in the larger number who took it in ordinary doses for long periods.

On the Use of Bromide of Lithium.—By S. WEIR MITCHELL, M. D.

In the experiments upon various bromides to ascertain whether or not any of them were free from the evil of causing destructive skin ulcers, I was struck with the fact that the bromide of lithium seemed to cause a more rapid and intense sleeplessness than the other bromides.

This observation induced me to use it since then in certain obstinate cases, and to test it comparatively with the bromides of sodium, potassium, and ammonium. These results I propose to call to the attention of the College. Up to the time I mention, bromide of lithium was not used in medicine, so far as I am aware, but was extensively employed in certain photographic processes, for which it was manufactured perfectly pure.

This salt is very deliquescent, and were on this account better given in solution. As I shall have to point out it has seemed to me to act more rapidly than the other bromides, and this may be due to its easy solubility, which is ordinarily associated with a high osmotic equivalent. There has been some tendency of late to prefer the bromide of sodium to that of potassium as a therapeutic agent, because of its possessing a larger amount of bromine. If any reliance is to be placed on this test we should acquire a new reason for placing bromide of lithium above both of them. The percentage is nearly as follows:—

In bromide of potassium there is about 66 per cent. of bromine; in bromide of sodium 78 per cent., and in bromide of lithium nearly 92 per cent.

I think the taste of the new salt rather less unpleasant than that of bromide of potassium, and rather more disagreeable than that of the sodium or ammonium salt.

The price of the lithium salt is at least four times that of the other bromides, but I am told that upon its larger use this difficulty will disappear.

My reasons, in brief, for bringing this new agent to the notice of the Fellows, are these:—

That it has seemed to me to act efficiently in some cases of epilepsy where bromide of potassium has failed.

That it is thus efficient in lesser doses than the salt just named.

That as an hypnotic, it is superior to the potassium salt and to the other bromides. To support these propositions, I select the following cases from my note-book.

J. T., æt. 14, had, at twelve years of age, attacks of *petit mal*, which in two years became interspersed with convulsions, sometimes at night, sometimes in the day, but usually violent. The case originated in gastric disorder, which has been very unmanageable. A year ago, he began to take bromide of potassium in doses rising from ten to thirty grains thrice a day with various treatment, addressed to the stomachal conditions. At first the bromide controlled the fits, but gradually they returned despite its increase to two drachms daily, while at the same time he suffered from insomnia. In this condition he returned to this city, where I again tried the bromide which had been abandoned in despair, he having a fit every three or four days and numerous little attacks. Here, as at his own home, bromide lessened the number of attacks one-half, but no more, and the insomnia remained scarcely altered.

After trying valerianate of quinia and belladonna, I resorted to bromide of lithium, of which he took, at first ten and finally twenty grains *ter in die* with the effect of improving his condition, at once giving him sound sleep, and lessening both forms of fit, so that he had light convulsions only

once in two weeks, and the *petit mal* not more than once in two days. Owing to the cost of the lithia salt, I returned, after two months, to the bromide of potassium, with at that time a result quite as good as that given by the bromide of lithium.

About eleven weeks ago, I determined to treat the gastric disorder by milk cure. Under this combination, his attacks have ceased, there having been none in eleven weeks: the stomach being comfortable, the *petit mal* altogether absent, and the memory, previously much impaired, having become rapidly better; so that the lad writes: "Life seems to me now quite a different thing from what it used to be." Of course I do not look upon him as cured, but I am glad to quote his case as one of the instances, which I hope to lay fully before the Fellows, of success attained in epilepsy by this combination of milk cure and bromides, where the latter alone had failed.

Eliz. C., æt. 19. Has had daily an epileptic fit on rising in the morning, or more rarely after breakfast. Anxious to compare the two salts, I gave her first bromide of potassium in doses of 25 grains thrice a day. This amount controlled the fits, which never returned unless she lessened the dose to fifteen grains, when she would have an occasional fit; in some weeks one, in others two. Ten grains of bromide of lithium thrice a day absolutely controlled the attacks, so that in two months there were none. I could not trace in this case any sufficient cause of disease.

It is hardly necessary to take up the time of the College with the familiar details of epileptic cases. I have at present under my care a case of *petit mal* without convulsions, recurring twenty or more times a day. The patient is positive that eight grains of bromide of lithium exercises a better influence than triple that amount of the potassium bromide.

A brother of this patient has had for years fits of epilepsy, which occur about once in ten days; he has a gastric aura, in the shape of slight nausea, which in most instances precedes the fit by nearly an hour. I used to order for this a mustard emetic, which sometimes broke the attack. He himself discovered, however, that twenty grains of bromide of lithium taken at once, in addition to his regular use of this salt, or of bromide of potassium, would at least two out of three times cut short the trouble. Now this result must have been due to some more sure or more speedy action of this salt, because the other bromides in like doses failed to so affect him. He is now doing remarkably well under the added use of milk cure.

I have now under my care Mrs. P., the wife of a physician. She has had for a year ringing in the left ear—some feebleness in the right leg; rarely a tendency to aphasia, and more or less insomnia; with noises and pain referred to the left temporal region. Bromide of potassium has proved of much service, but as it began lately to lose its power, I substituted, without her knowledge, ten grain doses of the lithia salt for twenty grain doses of the bromide of potassium. She remarked next day that the old medicine was doing her good again, and in fact the improvement in sleeping and in other respects was most distinct.

Miss V., an intelligent woman, after using the bromide of potassium for continued headache and insomnia, was placed on fifteen grain doses of the lithium salt. She is of opinion that the relief which follows always

with her each dose of either salt, is much more rapid when bromide of lithium has been used, and that she sleeps sounder under its use.

Ch. P., teacher, married, æt. 44; a victim of over-work, and various forms of trouble. Is incapable of any prolonged mental exertion, which flushes his face, causes intense pain between the shoulders, and insomnia. Has also frequent nocturnal emissions. Finding that the bromide of potassium, in twenty grain doses, thrice daily, was of great service, I requested him to use in place of it the lithium salt, and to observe the comparative results. He thinks the latter more unpleasant to take, but is of opinion that its power to bring sleep is greater, and indeed complains that it makes him feel too drowsy during the day.

It is needless to add to this evidence—and whether I am right or wrong in concluding that in bromide of lithium we have an addition of value to our list of bromides only larger future evidence can decide; I have long hesitated to lay the case before my medical brethren, and now trust that what I have here said may at least be thought sufficient to justify me in publishing my belief.

May 18. *Dislocations in Children.*—Dr. JOHN ASHHURST, Jr., reported three cases of dislocation, which he thought were somewhat interesting as occurring in children, and as illustrating the comparative influence of the muscular and ligamentous structures in resisting efforts at reduction.

CASE I. A boy, aged 10 years, admitted to the Episcopal Hospital Feb. 6, 1866, with luxation of the head of the right femur downward and forward—the injury having been produced several days before by violence exerted while the thighs were widely abducted. The dislocation was reduced by manipulation, without anæsthesia, and the boy discharged, cured, nine days later.

In March, 1870, Dr. A. had examined the limb again—the boy exhibited no evidence of his former injury, but felt slight pain in the knee when fatigued by unusual exertion.

CASE II. A boy, aged 8 years, admitted to the Episcopal Hospital February 19th, 1870, with luxation of the head of the left femur upward and backward, produced one hour before by a blow upon the hip from a falling piece of timber. The dislocation was readily reduced by manipulation without ether, and the patient discharged, cured, in ten days.

CASE III. On March 27, 1870, a female child, 2½ years old, while being swung around by the arm, in play, by an older person, received a sub-coracoid luxation of the head of the left humerus. The dislocation, as in the other cases, was readily reduced without ether.

Dr. Ashhurst referred to the old dispute as to whether resistance to reduction, in cases of luxation, came from muscles or ligaments, and used the cases above recorded as illustrations of the necessity of recognizing both elements: the muscular resistance in children was slight, and in adults could be annulled by employing anæsthetics, and there then remained only the ligamentous resistance which had to be considered in studying the mechanism of any mode of reduction.

Dr. PACKARD had met with a subclavicular dislocation of the head of the humerus twice in the same child. The first injury occurred at the age of two years, the second a little more than three months later; and both were due to lifting the patient by the arm. No anæsthetic was used in the reduction, which was easy. He thought the luxation was facilitated by the imperfect development of the bony processes, especially the coracoid.

ART. XVIII.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1870. *March* 10. *Cancer of Testicle.*—Dr. ELLIOTT RICHARDSON presented the specimen, with the following history :—

W. S., æt. 40, married, farm labourer, native of Ireland, was admitted to the Pennsylvania Hospital Feb. 12th, 1870, with an enlargement of the left testicle, and of lymphatic glands in the groin of that side. Tumour was perfectly opaque, not painful to the touch, but at intervals he experienced a dull heavy pain. Skin of the scrotum distended, but not otherwise altered. No other tumours or enlarged glands than those mentioned were observed. According to the man's own statement he has been in this country seventeen years, and up to about the first of last May was in perfect health. At that time he first noticed an enlargement of the testicle, which enlargement increased rapidly for about a month, and afterwards slowly to the date of operation. He can give no account of cancerous or tuberculous disease having existed in his family. The testicle was removed by Dr. Agnew on Feb. 19, 1870, and with it the enlarged inguinal glands, two of which were completely broken down, forming abscesses.

Referred to Committee on Morbid Growths, which subsequently reported that the testicle was enormously enlarged, measuring $4\frac{1}{2}$ inches long by $3\frac{1}{2}$ inches wide. Its external surface presented numerous shaggy flocculi. Upon section, the tunica vaginalis was found greatly thickened. The cut surface of the testis presented an encephaloid appearance, consisting of patches of pure white interspersed with others of grayish, or pink colour, and separated by thin trabeculæ of fibrous tissue.

Microscopic examination of the cells from the whitish patches showed multitudes of small cells ($\frac{1}{1000}$ in. to $\frac{1}{1500}$ in. in their long diameter), oval, slightly angular, or even caudate in shape. These cells were in a state of marked fatty degeneration, so that in most instances the nuclei were concealed by the fat globules, while in other cells a single round nucleus, very large in proportion to the containing cell, was visible. In addition, much free fat and quite numerous very large granule cells and numerous plates of cholesterin were seen. In scrapings from the less degenerated, more reddish portions, the cells contained less fat and presented one, two, or, in some cases, three nuclei. They were of the same shape as those before described. In all parts of the gland the stroma was very delicate and scanty.

Caries of Vertebræ ; Abscess opening into Lung.—Dr. HARLAN presented a specimen showing the sequel of a case he had reported to the Society a few months ago. The subject of it was a patient at the Children's Hospital, with curvature of the spine, who expectorated several small pieces of bone, one of which I showed, with a brief account of the case. The patient presented all the rational symptoms of phthisis, but, as the physical signs were wanting, I expressed the opinion that the harassing cough and profuse expectoration were due to an abscess connected with the diseased vertebræ, and opening into the lung. She died on Sunday last, and a *post-mortem* made the next day showed extensive old pleuritic adhesions on both sides, carious and calcareous bronchial glands, pus in the bronchial tubes, and slight congestion of the lungs,

but not a trace of tubercular deposit. The lower part of the right lung was firmly adherent to the spine, and on tearing it away, an abscess the size of a small hen's egg was seen, formed partly in the lung and partly by a deep excavation in the vertebral column.

A number of small fragments of cancellated bone were found loose in the cavity of the abscess, and two such pieces may be seen imbedded in the consolidated lung tissue in the neighbourhood of its walls. I have removed the dorsal vertebræ, nearly all of which, I think, when cleaned, will be found to be more or less diseased. The body of the vertebra at the seat of the abscess (about the seventh dorsal) is entirely removed, and the spine at this point is bent at a right angle. There was never any paralysis.

March 24. *Excision of Knee-Joint.*—Dr. ASHHURST exhibited the specimens (condyles of femur, head of tibia, and patella) from a case of excision of the knee-joint. The patient, a boy of 10, had received an injury four years ago, for the results of which he had been successively treated in several hospitals. The knee was the seat of great deformity, contracted to an angle of about 120°, the tibia being dislocated backwards and upwards, and the patella fixed upon the external condyle; the joint was partially anchylosed, somewhat tender, and frequently painful. Excision was performed yesterday by a single curved incision over the joint, the articular surfaces being removed with Butcher's saw. The soft tissues of the joint were deeply congested, the cartilage ulcerated, and the bone partially eroded.[1]

Supposed Parasitic Body.—Dr. W. H. PANCOAST presented a specimen sent to him from Bangor, Maine, of which the following is the history :—

M. W., a woman aged 23 years, had a dry cough (occasionally paroxysmal), for a year or two. At the end of this time she threw up this cylindrical body, nearly ¼ inch in diameter, and one inch long, which had, at first, a cartilaginous feel, and was of a bright pink colour. After this the cough immediately disappeared.

Referred to the Committee on Morbid Growths, which subsequently reported as follows :—

The object presented was about 1¼ inch long, wider at one end, which terminated abruptly and presented a concave surface, while it tapered gradually towards the other, which terminated in a blunt extremity. The larger end was about 2 lines wide, the smaller end about 1 line wide. The intervening shaft was uniformly about 1 line wide. The body was flattened, presented slight serrations on the edges as though from irregular shrinking from the action of the liquid in which it had been preserved. Its colour was of a dark brown approaching black.

On transverse section it presented a cellular structure, the cells appearing quite large, arranged circularly, with multiple nuclear-like bodies in their interior. There were also large opaque masses, apparently cells filled with pigment. On longitudinal section the cells were seen arranged

[1] The greater part of the wound healed by adhesion, and the patient is now (Aug. 18, 1870) quite well, with his leg firmly united at a slight angle, and able to walk without crutch, cane, or other assistance, and with no pain. The shortening is two and three-quarter inches, part of which, however, is due to a fracture of the thigh which occurred some years before the operation.

with their long axes (which were from three to six times greater than their transverse diameters) parallel to each other. Otherwise they presented the same appearances as on transverse section. The only animal tissue to which the appearances presented any resemblance is cartilage; but owing to the arrangement of the cells, it appeared to be of vegetable origin. The specimen was also, at the request of the committee, examined by Dr. H. C. Wood, Jr., who confirmed the view taken by them, and regarded the specimen as the stem of the frond of one of the fucoid algæ.

Abscess of the Brain; Ulcerative Endocarditis; Capillary Embolism of Kidneys and Spleen; Cerebral Hemorrhage. Autopsy. Dr. WM. PEPPER presented the specimens and gave the following history:—

A. B., æt. 9, a vigorous, well-grown boy, struck his head violently in the neighbourhood of the right frontal protuberance. The child was stunned for a time, but did not actually lose consciousness; he also vomited several times. There was a good deal of swelling and discoloration at the seat of injury, but this soon subsided, and in a few days the lad seemed as well as usual. He continued well for four months, during which time the only unusual feature about him observed by his family was occasional intense congestion of the face. This was developed by anger or exertion, and he was on one occasion observed to remain for some time with his head thrust out of a window. At the end of the four months he was attacked with obscure febrile symptoms, with heat of skin and acceleration of pulse. There were also moderately severe articular pains confined to joints of left extremities, and delirium, which was at first mild, but became more active. It was observed that he moved the left side of his body less readily than the right, but this was afterwards sufficiently accounted for by the articular pains. There was slight puffiness of the joints. A soft systolic mitral murmur was detected, and he evinced some uneasiness when the head was placed on præcordia. The febrile movement was somewhat irregular, but presented no marked remission. The urine was abundant, but could not be collected for more careful examination, as it was passed involuntarily. The surface was pale, and no eruption appeared. After a few days the condition of the mind changed to a state of more or less profound coma, which persisted till the day before death, when an abrupt remission in the fever occurred, attended by a free sweat, and soon followed by a return of intelligence, so that he recognized those about him. The following day he relapsed into a state of coma, and died about a week from appearance of the acute symptoms.

Autopsy twenty-four hours after death:—Head: Calvaria healthy, without any trace of previous fracture. There was a firm clot in one of the meningeal vessels, about under the seat of the former injury, and the meninges at this point were thickened. In cutting into the right hemisphere a cavity as large as a pigeon's egg was found in the anterior lobe, occupying the white substance between the antero-superior part of the corpus striatum and the cortical substance. Anteriorly, the wall of the cavity was formed only by a thin layer of cortical substance. The cavity was filled with a dark and chiefly fluid clot of blood. The walls presented no deposit of yellow pigment, but were discoloured, and here and there exhibited traces of chronic inflammatory action. The impression gained by a careful examination of the lesion was that there probably had been a small abscess in the sub-

stance of the brain at that point, and that a sudden hemorrhage had occurred into its cavity, enlarging it by laceration of surrounding tissue. The rest of the brain was entirely healthy.

Thorax: The *lungs* were healthy. The *heart* was of about the normal size, but on opening the left ventricle, the walls of this cavity presented a moderate degree of hypertrophy. The muscular tissue was firm, and, on microscopic examination, was found entirely healthy. There were evidences of old endocarditis in the shape of fibroid change in the tips of the papillary muscles; shortening, thickening, and some little coalescence of the chordæ tendineæ, and thickening of the free edge of the mitral valve. This thickening gave rise to a narrow ridge skirting the edge of the leaflets, but not surrounded by any vegetation. Microscopic examination of the structure of this thickened ridge showed it to be composed of quite dense fibrous tissue, with numerous small oval nuclei imbedded. There was also, however, on the posterior leaflet of the mitral valve, about $\frac{1}{3}$ in. from its free edge, a patch of ulceration ($\frac{1}{2}$ in. by $\frac{1}{6}$ in. in size), which had led to a perforation of the valve ($\frac{1}{3}$ in. by $\frac{1}{8}$ in. in size). The ulcerative disease had extended from the endocardium investing the valve to that covering the posterior wall of the ventricle at the line of the insertion of the affected leaflets, and here also there was destructive ulceration of the endocardium ($\frac{1}{3}$ in. in diameter), and superficial disintegration of the subjacent tissue. The aortic valves and those of the right side of the heart were healthy. The pericardium was healthy.

Abdomen: Liver congested but healthy. The *spleen* $\frac{1}{2}$ too large, presented at its inferior extremity a small collection ($\frac{1}{4}$ in. in diameter) of puruloid matter, evidently resulting from the advanced softening of an embolic patch. The *kidneys* were of normal size; their capsule thin and readily removed. Their external surface presented numerous minute elevations, each of which had a yellowish-white centre, surrounded by a narrow zone of deep congestion. On making a section of the organs their tissue was found to be quite thickly studded with similar minute patches, each one presenting the same pale, yellowish-white centre and surrounding zone of deep congestion. Softening had not yet appeared to any appreciable extent in the central portion of these patches.

Remarks.—The opportunity of describing and presenting these specimens is due to the courtesy of Prof. F. G. Smith, in whose practice the case occurred, and from whom the above clinical notes of the case were obtained. The obscurity which surrounded the diagnosis is of course manifest. The entire disappearance of the symptoms caused by the blow seemed at first to withdraw attention from the brain. It is, however, interesting to note that during the four months which intervened between the injury and the final illness, the child presented frequent intense congestion of the head and face. I have on one other occasion observed this same phenomenon in a case of latent cerebral abscess. In the latter part of the case now under discussion, the supervention of coma, and the paresis of the left side, taken in conjunction with the previous injury, led to the diagnosis of disease in the right hemisphere of the brain. In carefully examining the lesion of the brain it will be seen that it presented evidences of both old disease and of recent hemorrhage. There can, indeed, I think, be little doubt that the clot occupying the cavity in the anterior lobe was quite recent, and possibly had formed at the time when the comatose symptoms appeared. It appears probable, further, that the antecedent disease was a small abscess, or circumscribed patch of softening, owing to the absence of any deposit of yellow pigment on the walls of the cavity.

The connection which this cerebral lesion had with the acute attack of ulcerative endocarditis, if, indeed, any such relation existed, is most obscure; and it appears more likely that the latter affection occurred by coincidence, as an idiopathic disease. The lesions in the left ventricle, above described (hypertrophy of its walls, fibroid thickening of the free edge of the mitral valve), show that, as usual, the attack of ulcerative endocarditis had been preceded by chronic disease of the heart. The seat of the ulceration and the characters of the lesion were such as are most generally found; the chief peculiarity about the case being the very unusual youth of the patient, since ulcerative endocarditis is far more frequent in adult life. It is, perhaps, impossible to obtain a clear idea of the symptoms due to the endocardial lesion in the present case, beyond the mere fact that there was a mitral murmur and some præcordial tenderness, since these symptoms were greatly masked and complicated by those of the cerebral disease.

In regard to the immediate cause of the large cerebral hemorrhage which occurred shortly before death, it would appear to be due to the disturbance of the cerebral circulation, caused by the cardiac disease, favoured by the previous disintegration of brain tissue at that point.

It is interesting to observe, further, that despite the very numerous minute emboli lodged in the kidneys, the urine remained free and clear throughout the attack. The last point of interest to which I would call attention in the history of this case is the sudden and marked return of consciousness within twenty-four hours of death, a phenomenon which appears explicable only on the supposition of a sudden diminution of the venous congestion of the nerve centres.

Dr. ASHHURST remarked that the absence of pulmonary lesion showed that the condition of the kidneys, etc., was directly connected with the state of the heart, and only secondarily dependent upon that of the brain. The sequence of events appeared to be, *first*, a traumatic lesion ("concussion") of the brain, followed by degeneration and softening of the cerebral structure; *secondly*, ulcerative endocarditis, which was an occasional strange rare sequence of head injuries, being usually associated with other pyæmic phenomena; *thirdly*, embolism of various viscera as a direct result of the condition of the heart; and *fourthly*, hemorrhage into the previously softened brain structure. The cerebral hemorrhage, therefore, though the immediate cause of death, was merely a coincident occurrence, not necessarily connected with the lesions found in other parts of the body.

Dr. W. PEPPER said, in answer to a question of the President, that he presumed the hemorrhage was in some way connected with a diseased condition of the vessels in the walls of the abscess.

It was perhaps quite possible that minute emboli had entered some of the cerebral vessels, but it could scarcely be supposed that the hemorrhage was in any wise due to collateral pressure following embolism. It would require a combination of coincidences scarcely conceivable if but a single embolus should have led to hemorrhage, and that one in this cavity.

Kidney referred to Committee on Morbid Growths, which subsequently presented the following report:—

Section of kidney structure in interval of embolic patches presented perfectly normal appearances:—

On cutting thin sections through one of the embolic patches, a small arterial vessel was seen leading to it, with its calibre entirely filled with opaque

granular matter, so as to entirely obscure the transverse nuclei. The zone of congestion surrounding the central yellowish-white spots was highly opaque, owing to presence of granular matter and effused blood. The examination of the central spot itself showed it to be composed of renal cells closely aggregated, and in a state merely of granular change. No extensive softening had occurred, and no pus cells were seen.

Constrictions of Large Intestine from Peritoneal Adhesions.—Pyelitis and Cystitis.—Dr. DE F. WILLARD presented the specimens and said:—

They were taken from a cadaver in the anatomical rooms of the University of Pennsylvania, and are therefore utterly devoid of clinical history. Great omentum firmly adherent to whole of ascending colon and mesocolon, to gall-bladder, and to gastro-hepatic omentum. Abdominal contents otherwise healthy until reached commencement of descending colon, but from this point to anus were found numerous firm, white, inelastic bands constricting the intestine (which was itself otherwise healthy) at numerous points. One at the upper portion of the rectum compressed the bowel for about 4 inches, the bands arising from one side of mesorectum and passing over the intestine to be inserted into the other layer, thus encircling it like the clamps, which by their gradual contraction, had diminished the calibre to ¼ its former diameter. In left inguinal fossa lay from 2 to 2½ feet of large intestine, dragged down by strong bands arising from sigmoid mesocolon and lateral parietal layer of peritoneum, and the whole extent constricted at numerous points to the size of the little finger, but wherever was not thus compressed was of normal calibre and healthy. Vermiform appendix also drawn over to sigmoid flexure. Only small amount of hardened feces found in tract. Kidneys mottled, cortex thinned, pelvis dilated, and partially filled with yellowish-brown pus. Ureters dilated and filled with dark brown material, a mixture of pus, blood, and broken down epithelium, as determined by microscope. Bladder very small; walls thickened; filled with chocolate-coloured substance of consistence of thin jelly, which revealed blood, pus, and mucous corpuscles with much disintegrated granular material. Mucous membrane showed long-standing cystitis. Spleen at lower portion presented a peculiar, whitish, fibrous deposit almost resembling cartilage.

April 14. *Gunshot Wounds of Abdominal Viscera.*—Dr. C. T. HUNTER presented the specimen, with the following history:—

P. W., æt. 32. Admitted into Pennsylvania Hospital, at 9.30 P. M., 6th April, for two gunshot wounds received about an hour before. On examination, I found a small gunshot wound in the walls of chest, at a point one inch to the right of median line, and one inch and a half below level of right nipple. I traced the course of this ball by means of Nélaton's probe, for a distance of six inches, directly downward in thoracic and abdominal parietes, but was unable to find the ball. The second wound was situated in abdominal walls, three and a half inches to the left of umbilicus, and one and a half inches above. Very little blood had escaped from either of these wounds. The symptoms of nervous depression were decided, but notwithstanding, patient retained consciousness till within a few moments of his death. Shortly after receiving these wounds, he began vomiting blood, and, at occasional intervals, continued to do so till 2 o'clock the following morning. The vomiting seemed to yield slowly to small lumps of ice, which were greedily swallowed by the

patient, as his thirst was intense. Patient complained almost constantly of severe pains in left hypochondrium, and beneath left scapula. His breathing was regular but rapid and unattended with pain; no cough nor expectoration, nor was there at any time pneumothorax. At about 10 o'clock A. M. on the following day, patient passed about a half a pint of high-coloured urine; shortly afterwards he had a motion of his bowels; this consisted of a mass of feces, with fully a pint of very dark blood. For six or eight hours before death, the abdomen became distended with flatus, giving rise to considerable dyspnœa. The treatment consisted of opium suppositories, morphia in large quantities by hypodermic injections, with hot fomentations of water and laudanum to abdomen. Died at 4.30 P. M. on the 7th.

Autopsy twenty hours after death.—Rigor mortis, very feebly marked, abdomen distended and tympanitic. The bullet which had produced the wound in the chest walls was found in the sheath of the rectus muscle, between the muscle and peritoneum, a little below and to the right of the umbilicus, showing that the course of this ball had been almost directly downwards for a distance of fully fourteen inches in the walls of the chest and abdomen, without wounding the pleura or peritoneum.

Peritoneal sac filled with gas, bloody fluid, and recent blood clots. The latter were confined to the upper portion of the abdomen. The course of the lower wound through the abdominal parietes was upwards and inwards.

From the appearance of the wounds in the abdominal viscera, it would seem that the bullet entered the stomach through the fundus, emerging through the lesser curvature, wounding the lesser omentum, entering the stomach again through the lesser curvature, and finally passing out through the walls at the pyloric extremity a little below the pyloric opening. The wounds in the superior curvature were filled with firm coagula, which, probably, had the effect of arresting the hemorrhage from the anastomosing branches of the pyloric and cardiac vessels. The transverse mesocolon was perforated, the coats of the corresponding portion of the colon were grazed, and finally, the upper end of the jejunum was wounded at two points by the ball. It appeared to have been prevented from passing out through the back by having come in contact with the left transverse process of the first lumbar vertebra, which destroyed its force and turned it up through the diaphragm into the thorax, where it was found lying loose. The base of the left lung was slightly contused. The other abdominal organs escaped injury.

Stricture of Colon, with Ulceration and Perforation.—Dr. E. RICHARDSON presented the specimen, and read the following history:—

C. R., æt. 43, married, a native of Germany, after severe and long-continued exposure during a journey from Boston to this city on foot, was attacked about two weeks previous to my seeing her with violent vomiting, which lasted up to the time of her death. She had at the same time frequent discharges from the bowels, which consisted frequently of blood, and which continued for about a week, when they ceased, and about the same time the vomited matter became largely fecal. When I saw her she was in a collapsed condition, with scarcely a perceptible pulse at the wrist, cool skin, and the tongue presenting the raw-beef appearance. The abdomen was very largely distended and tympanitic. She could retain neither food nor medicine in the stomach, as vomiting was almost

incessant, and when small quantities of food and stimulus were thrown into the rectum, they were immediately expelled, and followed on one occasion by a little blood. She died about eighteen hours after I first saw her, April 12th, 1870.

Post-mortem made sixteen hours after death, by Dr. C. T. Hunter and myself, exhibited, in addition to the appearances presented by the colon, which was greatly diseased throughout, slight discoloration of the small intestine, more marked in the duodenum about the mouth of the ductus com. choledochus; the gall-bladder was found to contain several calculi. The liver, spleen, and kidneys were apparently healthy, except that the latter were congested.

The colon was found to be perforated in the lower part of the sigmoid flexure; immediately below this is an incomplete stricture which seems to be the limit of disease in this direction, the rectum being normal.

Single Unsymmetrical Kidney; filled with Pus, and forming Abdominal Tumour.—Dr. DE F. WILLARD presented the specimen, and read the following:—

Mrs. ——, æt. 58 years, mother of four children, had enjoyed fair degree of health during life, although for many years had suffered with pain in right side of abdomen, and was unable to lie on right side. Still she never suspected any kidney trouble, and was considered a healthy woman; this one kidney doing its extra work without great difficulty. Fifteen or twenty years since, she was treated by Prof. Meigs for disease of uterus or appendages, and soon after by Dr. Goddard; ovarian disease being apparently suspected.

The exact time of appearance of this "tumour" is somewhat uncertain, yet she has suffered with pain in that region for many years. It is only within the past few months that she has experienced any difficulty in micturition, and this was attributed to pressure of the mass upon the neck of bladder. She affirmed that she had passed pus from her urethra, but she was not sufficiently ill to require medical attendance during this time.

Came under Dr. Rodman's care but a few weeks before death, at which time she was suffering much pain in region of tumour. This "tumour" was situated in right anterior lumbar region, extending into umbilical, and to right inguinal, and could be easily felt through abdominal walls, as an oval mass, somewhat nodulated. Stomach excessively irritable, refusing to yield to all treatment. Was seen in consultation by Prof. D. Hayes Agnew, and also by Dr. W. L. Atlee. Examination of urine by Dr. Hall gave the following result: Colour, pale and opaque; specific gravity, 1.008; alkaline—albumen $\frac{1}{6}$; microscopically, epithelial scales; small renal casts; crystals of oxalate of lime and triple phosphate. Presence of pus or blood not mentioned. Sank rapidly and died April 1, 1870, from exhaustion and with *no* symptoms of uræmia.

Autopsy, forty hours after death, by Dr. Willard, in presence of Prof. Agnew and Drs. Rodman and Atlee. Considerable quantity of fat in abdominal walls.

Peritoneal effusion but slight. No signs of peritonitis; some slight adhesion of omentum to mass, hereafter described. Lying in right lumbar, inguinal and umbilical regions, was a large mass presenting somewhat the appearance of a distended stomach. Its shape was oval or globular, presenting no characteristic appearance of a kidney, since it was deeply enveloped in surrounding fat and connective tissue; while the

portion resembling a stomach was found to be the immensely dilated pelvis. Upon removal, the kidney was found to be enormously hypertrophied, its pelvis greatly dilated, and the whole structure apparently one immense sac of pus. Length, 11 inches; width, with pelvis, 9 inches. Weight, 33 ounces. Ureter, not dilated. No calculi save few "gravel" stones, of size of mustard seeds. There were two arteries and three veins.

Upon section the kidney showed, in the aggregate, a largely increased amount of renal structure on account of hypertrophy, although in many places it was entirely destroyed, and nothing more than the mere capsule remained; while in at least eighteen different portions were depots or excavations in the renal structure, extending nearly to surface, which were all connected with pelvis and all filled with pus. Pelvis dilated so as easily to admit of one's fist.

The cortical portion compared with pyramidal was in deficiency, but was really thicker than the normal non-hypertrophied condition of cortex. The whole structure was dark, congested, and much softened, and was decidedly unhealthy in appearance to the naked eye.

The contents of the sac, upon examination, were found to consist largely of pus. Sp. gr. 1.022. Addition of liq. potass. or ammon. rendered more viscid. Boiling coagulated a portion. Under microscope; pus and blood corpuscles, many of them disintegrated, and a few phosphatic (triple) crystals.

Renal casts could not be found, though they were carefully and repeatedly searched for; yet this may have been due to their disintegration, since it was several days after death before the examination was made.

At the superior portion of kidney was a true cyst, of the size of an English walnut, entirely unconnected with the central cavity, filled with true cystic fluid, which was almost entirely coagulable by heat. This cyst was honeycombed by delicate white partitions or bands. Left kidney entirely absent, no trace of it being discoverable in any part of abdomen.

Supra-renal capsule, ureter and renal vessels of left side all absent. Right ureter entered bladder very obliquely, and finally opened near median line. Slight dimple in mucous membrane at point of normal entrance of left ureter.

Bladder empty and healthy. Uterus and both ovaries perfectly healthy, as were other abdominal organs.

Brain and thoracic viscera not examined.

Referred to Committee on Morbid Growths. A committee, consisting of Drs. De F. Willard, Packard, and T. B. Reed, were also appointed to collect the cases recorded of solitary kidney.

Report of Committee on Morbid Growths.—The tissue was highly granular, apparently in part at least, from prolonged maceration. There were no traces of malignant disease.

Report of Committee appointed to Collect Cases reported of Solitary Kidney.—We have examined nearly all the prominent American and English publications, and present as a result the following cases in addition to those alluded to by Mosler in *Archiv. d. Heilkunde*, 1863, p. 290.

1. Absence of left kidney and ureter; male adult.—Dr. Burwell of Buffalo, N.Y., Am. Med. Journ. April 1847, p. 523. (From Buffalo Med. Journ. Dec. 1846.)

2. Absence of left kidney and ureter.—Labe, Am. Med. Journ., April, 1855, p. 490. (From Compte Rendu de la Soc. de Biologie.)

3. Absence of left kidney and ureter; capsule present; in a male infant still-born—right ureter opened on the left side of the bladder.—Förster, American Med. Journal, Oct. 1858, p. 511.

4. Absence of left kidney—capsule present; male adult.—Packard, American Med. Journal, April, 1862, p. 416.

5. Absence of left kidney and capsule; female æt. 53, uterus bifid.—Packard, American Med. Journal, July, 1863, p. 130.

6. Absence of left kidney—capsule present; male adult.—Thayer, Boston Medical and Surgical Journal, vol. iv. p. 11.

7. Absence of left kidney—capsule present.—S. Parkman, Dr. J. B. S. Jackson's Catalogue, p. 281.

8. Absence of right kidney—left renal capsule small, right much larger, in a monster.—Shattuck, Jackson's Catalogue, p. 239.

9. Absence of left kidney, 1 pelvis, 2 arteries, 3 ureters.—Hodge, Pennsylvania Hospital, Pathological Museum.

10. Left absent—right filled with calculus.—Dr. Hargadine, Phila. (Unpublished case.)

11. Absence of right. Supra-renal capsule and ureter present.—Ogle, Trans. Path. Soc. Lond., vol. iii. p. 382.

12. Absence of left kidney and ureter.—Murchison, Trans. Path. Soc., Lond., vol. x. p. 190.

13. Absence of left. Supra-renal capsule present, 3 arteries, 2 ureters.—Hillier, Trans. Path. Soc., Lond., vol. xv. p. 43.

14. Absence of left kidney and ureter.—Bruce, Trans. Path. Soc., Lond., vol. xvii. p. 175.

15. Absence of left; 2 ureters, opening separately, 3 arteries, 3 veins; right kidney weighed 93 oz.—Johnson, Trans. Path. Soc., Lond., vol. xix. p. 274.

16. Absence of left; 1 artery.—Lancet, 1863, ii. p. 622.

17. Absence of left.—Garrod, Lancet, 1863, ii. p. 724.

18. Absence of right; supra-renal capsule present; artery and veins absent.—Lancet, 1866, ii. p. 251.

19. Absence of left kidney and ureter.—Spooner, Lancet, 1868, p. 530.

20. Absence of right; supra-renal capsule absent.—Army Med. Museum, Fort Pitt, Chatham.

21. Absence of left, also of ureter.—Army Med. Museum, Fort Pitt, Chatham.

22. St. Thomas' Hospital, No. 1058.

23. St. Thomas' Hospital, No. 1059.

24. No. 2026,[19] (Guy's Hosp. Museum,) supra-renal capsule present.—Wilks' Path. Anat., p. 355.

25. No. 2026,[20] (Guy's Hosp. Museum,) implied that supra-renal capsule was not present.—Wilks' Path. Anat., p. 355.

Doubtful Cases—not definitely stated whether any other kidney present or not.

Case 1. Kidney situated on sacrum, 2 arteries, 1 vein.—Army Medical Museum, Fort Pitt, Chatham.

Case 2. Kidney situated on sacrum, 3 arteries, 3 veins.—Ibid.

Case 3. Kidney situated at bifurcation of aorta, 3 ureters uniting into one, 4 arteries.—Gay, London Pathological Society's Reports, vol. iii. p. 116.

Case 4. Kidney situated as above. 2 ureters uniting into one.—Thompson, London Pathological Society's Reports, vol. vi. p. 267.

Kidney had probably existed at some time.

Case 5. Right kidney mere rudiment, ureter turned upon itself not entering bladder—vessels wanting.—London Pathological Society's Reports, vol. i. p. 293.

Case 6. Left ureter atrophied and impervious, terminating in a cyst size of pigeon's egg, containing a dark syrupy fluid, and some cholesterine; no kidney structure; male adult.—New York Hospital Catalogue, No. 744, p. 295.

Case 7. Right kidney only sac. fœtus; other kidney malformed.—Hicks, London Pathological Society's Reports, vol. xvii. p. 177.

Case 8. Left atrophied to a drachm, but showed Malpighian bodies. Ureter impervious.—Jones, Lond. Path. Soc. Reports, vol. viii. p. 279.

The committee would therefore present these twenty-five undoubted cases in addition to the fourteen of Mosler, before alluded to, making in the aggregate thirty-nine cases collected by them. In addition to these there are eight cases in which a certain amount of doubt exists, and which have, therefore, been separately tabulated. Of the twenty-five undoubted cases, the left was absent in seventeen instances, the right in four; five cases are uncertain, while in Mosler's cases the deformity was found about equally upon the two sides.

The committee would especially call the attention of the members of the Society to the fact that the supra-renal capsule is found present at times, even when the kidney is entirely absent, thus showing a distinct character.

Horse-shoe kidneys not collected.

Dr. PACKARD presented for Dr. F. H. GETCHELL, a *fibroid tumour of the uterus*, which was partially removed by administration of ergot. The removal was completed by combined traction from below and pressure from above. The patient was 27 years old, was married twelve years, and had four children by a previous husband. Profuse hemorrhages occurred eighteen months ago.

May 12. *Testicle (left) from Mr. X., æt.* 55. Dr. PACKARD presented the specimen and gave the following account:—

Mr. X. was first seen by me in 1867. He then had a hydrocele on the left side, about as large as an orange. He had had a blow on the part the year before. April 12, 1870, drew off about f℥iv of clear liquid.

May 10. Castration.—First evacuated the liquid from a sac, clear, no spermatozoids. The remaining contents of the left side of the scrotum were then removed in the usual way. Acupressure applied to the vessels of the cord. Four points of lead wire suture. Testicle atrophied. There had evidently been a hæmatocele. Was this a hydrocele of the cord, complicated with a hæmatocele in the tunica vaginalis?

May 26*th. Mammary Cancer.*—Dr. JOHN ASHHURST, Jr., exhibited a specimen of mammary cancer, removed by him, from a patient 54 years of age. The tumour, which occupied the left breast, had appeared five months previously, after the reception of a severe blow upon the part. It was very hard to the touch, the skin being adherent, dimpled, and slightly lardaceous; there was no adhesion to the pectoral muscle, and no enlargement of the neighbouring glands. The tumour was painful, and rapidly enlarging; there was occasionally a sanious discharge from the nipple. Excision was effected by elliptical incisions, embracing the nipple and adherent portion of skin, the whole breast being removed; the wound healed by adhesion. Section of the tumour laid open a collection of bloody puriform matter, which apparently resulted from degeneration of the cancerous structure, and which communicated with the excretory ducts of the nipple. Dr. Ashhurst requested that the specimen should be referred for examination to the Committee on Morbid Growths, which committee reported that scrapings from the cut surface showed a large amount of free fat; the cells were, for the most part, rounded, granular, and fatty, with imperfectly formed nuclei; others were larger, more angular, and epithelial in appearance, and contained large single nuclei. There were also a few mother cells, containing two or three included cells. The stroma, which was lax but markedly fibrous, showed

circling and intersecting bands of fibrous tissue, inclosing groups of the above described cells.

Chronic Pleurisy; Paracentesis Thoracis.—Dr. W. W. KEEN presented the specimens, and read the following history:—

D. R., æt. 23, gilder, healthy till July, 1869, when he took cold, but was not confined to bed. Health continued poor till December, when he became worse with cough, night-sweats, dyspnœa, and great weakness. He first came under my care Feb. 21, 1870.

He was so weak that he could barely sit up in bed, suffered greatly from cough, with yellowish-white sputa. Pulse 120, and very weak. Respiration 42. On the left side, anteriorly and posteriorly, there was dulness from the clavicle to a level with the umbilicus, but just under the clavicle the dulness was not complete. The right chest was impaired in its resonance. The lower border of the liver was almost at a level with the ilium. The heart's apex beat was one inch below and half an inch inside of the right nipple. At the left apex, anteriorly, a few râles were heard, but no sound whatever anywhere else; posteriorly, a few dry râles and bronchial breathing down to the middle of the lung. The respiration on the right side was puerile. The heart sounds normal, but displaced.

The left side was evidently distended, especially anteriorly and laterally; the intercostal spaces effaced rather than bulging. Posteriorly they were visible. The entire left chest moved but little with the respiratory act. Vocal fremitus was out of the question, as his voice had been reduced to a whisper for two months. Thinking that possibly the displacement of the heart had stretched the left recurrent laryngeal nerve, and so produced the aphonia, I examined the larynx. His throat was so irritable that I was only able to satisfy myself that there was no paralysis of the muscles of the left vocal chord. Treatment: potass. iodid., cod-liver oil, milk-punch, beef-tea, and morphia, *pro re nata*.

Feb. 25. In order to make the diagnosis of chronic pleuritic effusion positive I introduced the hypodermic syringe point, and, making suction, obtained a half ounce of opaline yellowish fluid, coagulable by heat and nitric acid. His respiration was so much embarrassed that paracentesis thoracis was determined on.

26*th.* Dyspnœa greatly increased; respiration 65; pulse 142. The smallest trocar of Bowditch's apparatus (see *American Journal of the Medical Sciences*, April, 1852, and Jan. 1863) was introduced at the upper border of the tenth rib, a little in front of a line from the angle of the scapula. Half a gallon of fluid was drawn off, when no more fluid would flow. His respiration fell to 40, and his pulse to 128, and, by evening, to 33 and 120 respectively. The heart beat was nearly at the median line, and the area of respiratory murmur was slightly increased. The fluid showed nothing by the microscope save some unrecognizable fragments. On standing 24 hours a gelatinous transparent coagulum formed, which in part floated on the surface.

March 1. Respiration 29; pulse 112, but weaker. He has been able to lie on the right side for several hours with comfort.

5*th.* While greatly relieved by the operation he is sinking gradually. Pulse 130, respiration 33.

8*th.* Died at 12 M.

10*th.* Sectio cadaveris at 12 M. Body very much emaciated. Left intercostal spaces anteriorly obliterated. Puncture of operation healed.

Thorax. On removing the sternum the heart lay over to the right side, the apex to the right border of the sternum. The *right lung* was studded with small tubercles, rather scantily below but pretty thickly at the apex. It was bound to the parietes of the chest by tolerably firm pleuritic bands. The *left lung* was nowhere to be seen. The pleura was $\frac{3}{16}$ inch in thickness in its visceral layer, and $\frac{1}{16}$ in its parietal layer. The whole cavity was divided into a large number of loculi by fibrinous septa, extending across it in various directions, thin, transparent, and very easily torn. The cavity contained $3\frac{1}{2}$ pints of the same kind of fluid evacuated at the operation. The point of puncture was seen as a small slightly reddened spot. The left lung was found lying behind the pleura at the upper and posterior part of the chest. About one-half of it was simply compressed, and the other half tubercular. The *heart* was normal. Both ventricles contained clots; that in the right, or pulmonary side, of large size, adherent, extending into the auricle, and almost wholly fibrinous; that of the left side, small, loose, and only partly fibrinous.

Abdomen. The *liver* was enlarged, especially its left lobe; was fatty, an admirable specimen of a "nutmeg" liver, and extended far over to the left side, and down to a level with the umbilicus. *Kidneys* and other abdominal organs healthy.

June 9. Medullary Carcinoma of Antrum.—Dr. MEARS presented the greater portion of the left superior maxilla which had been removed by Dr. W. L. Atlee for disease involving the antrum.

The following is the history of the case:—

R. A., æt. 53, native of England, occupation cattle-drover, has always led an active out-door life, and enjoyed the best health. Two months and a half since, on his return home from a visit to the West, during which he was exposed to many hardships, he experienced pain in the left temporal region, extending down to the upper jaw, and felt most distinctly over the site of the antrum. The pain was severe and lancinating, and was thought to be due to neuralgia. Subsequently, the three molar teeth were extracted, under the belief that the pain was due to some disease of the nerves connected with these teeth. Soon after the extraction of the teeth he felt a tumour projecting into his mouth. This tumour increased in size very rapidly, encroaching upon the cavity of the orbit of the eye to such an extent as to produce very marked exophthalmia. The rapidity of growth of the tumour clearly indicates its malignant character. It possesses the gross appearances of infiltrated medullary carcinoma. The tumour was referred to the Committee on Morbid Growths, which reported that the tissue presented very numerous cells of rounded shape, varying greatly in size, and containing one, two, or even four comparatively large nuclei. The cell contents were markedly granular, and in some instances mixed with fatty granules. There was in addition much free oil, and occasional small plates of cholesterin. A few compound granule cells were also seen. The tumour appears, therefore, to be of an encephaloid nature.

REVIEWS.

ART. XIX.—*A Practical Treatise on the Diseases of Children.* By J. FORSYTH MEIGS, M. D., one of the Physicians to the Pennsylvania Hospital, Consulting Physician to the Children's Hospital, etc. etc. etc.; and WILLIAM PEPPER, M. D., one of the Physicians to the Philadelphia Hospital, Lecturer on Morbid Anatomy at the University of Pennsylvania, Pathologist to the Pennsylvania Hospital, etc. etc. etc. Fourth edition of "Meigs on Children," revised and greatly enlarged. pp. 921. Philadelphia: Lindsay & Blakiston, 1870.

IN the department of diseases of children, the friends of American medical literature have always had much cause for congratulation. From an early period of our history, there have been treatises upon this subject of such character, practical as well as theoretical, as to bear comparison with any foreign authorities, while the wide extent of our country, its peculiarities of climate and consequent modifications of disease, render home-works peculiarly necessary, both to the student and practitioner. Among these works, "Meigs on Children" has always occupied an honourable position and enjoyed a high reputation, having passed through three editions. The present work is the old friend in a new dress, being the fourth edition, as stated on the title-page, so much enlarged, extended, and re-written, as to have required the assistance of an associate author, Dr. Pepper, whose position and reputation are guarantees as to his qualifications for the task.

Twelve years have elapsed since the third edition was published, and in that period great advances in our knowledge have been made, requiring corresponding modifications in the work, while many subjects omitted before are now supplied. The changes are briefly mentioned in the preface:—

"Among the principal of these changes may be mentioned the great enlargement of several articles, and especially of those on thrush, convulsions, chorea, tracheotomy in croup, and parasitic skin diseases. Other articles have been entirely rearranged or even rewritten, as those upon diseases of the stomach and intestines, and upon eczematous affections. In addition to such changes, however, there have been no less than seventeen full articles added, embracing the following important subjects: diseases of the heart and cyanosis; diseases of the cœcum and appendix vermiformis, and intussusception; chronic hydrocephalus, tetanus, atrophic infantile paralysis, facial paralysis, and progressive paralysis with apparent hypertrophy of the muscles; rheumatism, diphtheria, mumps, rickets, tuberculosis, and infantile syphilis; typhoid fever and scleroma. These various additions and changes have involved the introduction of more than two hundred pages of new matter."

With this evident effort at completeness, in which the authors have been so nearly successful, we regret not to find the subject of intermittent fever and allied malarial diseases. From the frequency of their occurrence in many portions of our country, and from some peculiarities in their course in children, as, for instance, convulsions occurring during the cold stage, and in place of "chills," they would seem especially to merit consideration.

Some of the changes and additions which have been made deserve a

more extended notice, and we select for examination from diseases of the respiratory organs, which stand first in order in the work, croup and its treatment, as subjects yielding in interest and importance to no other. The nomenclature of the different phases of disease to which the term croup is applied, is all that can be desired. If the plan adopted here, and by our latest and best American authorities, were universally followed, much confusion would be avoided, and the course of the student in mastering the subject rendered materially easier. Simple laryngitis, spasmodic laryngitis, pseudo-membranous laryngitis—these are the different forms, plainly marked by name and in accordance with nature. Thymic asthma, or spasm of the glottis, is not of course considered in connection with these, the application of the term "croup" to that disease being one of the confusing relics of past nomenclature, and not countenanced by any recent authority.

The first of these diseases, simple or catarrhal laryngitis, need not detain us; nor have we much to remark upon the second form in which laryngeal spasm is, for some unknown reason, a superadded element of the disease. The parents of the patients make no distinction between this and the pseudo-membranous form, and call for professional aid in the utmost anxiety and alarm. Yet, as is carefully pointed out, it is far from being a dangerous disease; probably no other, to which anything like the dread attaches, is so rarely fatal:—

"Of 109 cases of the disease of which we have kept an accurate record, none proved fatal, though 23 of these were of the grave form. We may state, also, that we have seen at least 100 more cases of which we have no written account, in none of which was there a fatal termination."

We have under our continual observation several instances exhibiting the tendency of the disease to run in families; whether, however, from hereditary influence, as the authors say may without doubt occur, we have been unable to determine.

The treatment of the disease has been modified from the last edition so far as to exclude depletion entirely. The authors are satisfied that it is not a necessary measure, but admit that they might resort to it in a robust child under exceptional circumstances. Calomel they have also found "less necessary than they supposed." After the use of emetics, and especially to prevent returns of the paroxysms, we have found opiates, which are recommended here, render essential service. Late experience, however, indicates to us that belladonna ranks higher as a preventive medicine than stated by the authors; they say it is theoretically indicated, but they have scarcely used it. We prescribed it almost accidentally at first; but in one family, who made more frequent calls upon us for this disease than any other, the less frequent occurrence of croup during its use became matter of comment, and they are firmly convinced that their almost complete immunity during a whole winter was due to the medicine. We have met with corroborative evidence, but still cannot boast of a wide experience.

There is one remedy for this disease not mentioned by the authors, and it is a surprising fact to us, because it is *the* remedy, *par excellence*, of Trousseau, an author very frequently quoted in the work. We allude to the application of hot water to the throat by means of a sponge or compress. The great French clinical teacher trusts to this means, and this alone; he prescribes not even the simplest emetics, as may be seen by reference to his *Clinique Médicale* (2me ed., t. i. p. 528). Credit is given by Trousseau to Graves for the plan, but Graves says (Lecture XXXIX.) that it was proposed by "Dr. Lehman, of Torgau." When called early

he seems to rely upon this remedy exclusively: "I have repeatedly treated the disease on this plan, and with the most uniform success." Such authorities are ample, and we may safely rely upon such testimony; still, the current of popular prejudice would probably prove too strong for the exclusion of emetics, and they are remedies clearly indicated and of no injurious effect.

Pseudo-membranous croup presents many points of interest besides its high rate of mortality, which alone must always make it a subject of the first importance. The first point we note is the difference of views expressed by the authors from those generally held as to the essential difference between this croup and diphtheritic croup in which the larynx is involved by extension of the false membrane from the pharynx:—

"Our personal experience constrains us to state that the differences between the two forms of membranous croup above enumerated, have not seemed to us sufficiently marked and constant to positively establish their essential diversity, and that it is our decided opinion that the vast majority, if not all, of the cases usually termed pseudo-membranous laryngitis are in reality instances of primary laryngeal diphtheria, in which the constitutional symptoms are not grave, and where the faucial deposit has been very slight, and perhaps even overlooked."

They believe that careful examination of the throat at an early stage would, "in the vast majority of cases of true croup," reveal the presence of membranous exudation on the tonsils and pharynx. At the same time they do not deny the possibility of a pure idiopathic pseudo-membranous laryngitis; indeed their own statistics show that it occurs with tolerable frequency.

"In 31 cases observed by ourselves, in which the condition of the throat was recorded, the croup followed membranous angina in 21 cases; in 5 the disease began in the larynx, but was attended late with small deposits on the tonsils; and in 5 only was there no deposit on the throat at any time."

We do not find that quotation of authorities which we should have expected to sustain so important a pathological doctrine, not even Hillier is quoted. Indeed, so far as our researches have extended, the question seems to be left just about as the authors' experiences quoted above leave it. In the words of Niemeyer, "the coexistence of both forms of the malady, although extremely frequent, is by no means constant." Trousseau, too, says the pharynx is affected in the "generality of cases," although he cannot deny the independent laryngeal form. The latest statistics we have seen do not sustain the authors to the extent they go. Bourdillat, interne of the Hospital Ste. Eugenie, communicated to the Medical Society of the Hospitals of Paris 120 cases of croup observed in the service of M. Bergeron, and of these there were 46, or nearly one-third, without pharyngeal complication.[1] This in Paris, too, where cases without affection of the pharynx are not considered as true croup.

After all, may not different localities present the two forms of the disease in varying proportions? This would seem to be the opinion of Vogel, who rarely finds a pharyngeal membrane at Munich, while he says in Middle and North Germany the case is different, the pharynx and tonsils being frequently affected.

In regard to this question again the authors assume the anatomical identity of the membranes in croup and in diphtheria, and do not recog-

[1] Archives Générales de Méd., July, 1868, p. 125.

nize, or allude to, the doctrine of the German pathologists. We quote from Niemeyer:—

"Croupous inflammations are inflammatory disorders in which a fibrous exudation which rapidly coagulates is thrown out upon the free surface of a mucous membrane, but which involves the epithelium only. * * * The diphtheritic process is also characterized by the production of a fibrinous rapidly coagulable exudation, but differs from croup, the exudation forming, not merely upon the surface of the mucous membrane, but also within its substance."[1]

We have perhaps spent too much time upon a pathological question to the decision of which we can bring no personal experience, since true croup is a rare disease in the section where we live. But it is an interesting question, and one which must yet remain open, since we find very high authority upon both sides of it. We are convinced, however, that be the pathological question decided in the future as it may, practically and therapeutically there will always be a wide distinction between the cases presenting profound constitutional symptoms, and those in which the local disease predominates; the especial alteration of the blood crasis and the profound adynamia of diphtheria will always be sufficient to modify both treatment and prognosis, even if the consecutive paralysis and albuminuria fail to carry conviction of an essential difference in nature.

In entering upon the treatment of this disease the importance of the early administration of remedies is justly insisted on, and the high rate of its mortality under the most favourable circumstances is acknowledged. In regard to direct depletion we find about the same remarks as already quoted in speaking of spasmodic laryngitis. The power of this remedy to reduce fever and allay inflammation being no longer acknowledged, there is no justification in bleeding *coup sur coup*, nor can it be justly a reproach to the profession that the plan was once pursued as in the acute laryngitis of Washington. The plan was correct with the light then possessed; the premises being accepted, a conscientious physician could do no otherwise than bleed, and bleed again if the disease was not checked. In the diphtheritic cases venesection is rejected entirely, and declared to be injurious; only in the case of vigorous children suddenly attacked would the authors resort to it.

Mercury, too, is entirely abandoned as a remedy for the control of inflammatory action.

"Since the publication of the last edition of this work, our increased dislike of the administration of mercury to children in large and frequently repeated doses, and the constant observation that even its free use does not appear to arrest the course of true croup, or to prevent the formation of membranous exudation, have led us to abandon entirely its employment in this disease."

We shall not here enter at length upon the question of the aplastic powers of mercury. We cannot omit saying, however, that we much prefer to this unconditional rejection of the remedy, the more judicious position of Flint, who in a disease so rapid and so generally fatal would administer it so long as any ground exists for belief in its power. Still more do we prefer the practice of Hillier, who, although believing with the authors that croup and diphtheria are identical, "gives calomel in small doses until the bowels are relaxed with greenish stools."[2]

[1] Text-Book of Practical Medicine, vol. i. p. 15.

[2] Diseases of Children: Philadelphia, 1868.—He says: "In some of the worst cases in which recovery has occurred, calomel has been the remedy." (p. 159.)

Alkalies are the remedies relied upon as alteratives to take the place of mercurials, and do what those medicines were supposed to do.

The chief reliance, however, is upon emetics, in harmony with other authorities. The one preferred is alum, so long known in connection with the name of the late Charles D. Meigs. We have had no personal experience with this emetic, but doubt whether it has succeeded in winning that favour in the profession at large which might have been expected from the encomiums passed upon it.

We looked with interest for further information as to one emetic mentioned in the last edition, but found the paragraph concerning it omitted entirely. We allude to the turpeth mineral (hydrarg. sulphas flava), the beneficial effects of which were maintained by Dr. Hubbard, of Hallowell, Maine. Our interest arose from the fact that this medicine has been recently again recommended to professional favour by very high authority, and in terms that cannot be held as less than extravagant.[1] This testimony does not stand entirely alone, however; independently, and at so great a distance as France, others claim to have obtained from the same remedy better results than from any or all others in this most fatal disease. Further information, therefore, as to any remedy seeming to promise control over so fatal a disease must be looked for with deep interest.

The operation of tracheotomy follows upon failure of medical means, and we find this subject considered and discussed with the care and completeness which its importance demands. It needs but to read and compare the few introductory pages upon this operation in the last and the present editions to be convinced that "the world moves," and moves forwards too. In the brief space of time which has elapsed since the other edition was issued, a great change has passed over the profession in regard to this operation; then unfavourable opinions of eminent authority, in regard to it, could be quoted in great number; it was rarely performed anywhere, and in some countries seemed almost abandoned. Without tracing the current of the change of opinion, in producing which Trousseau was perhaps most influential, we may briefly say that the operation is now everywhere established as a legitimate procedure, the results obtained by individual operators being too numerous for detail, but yielding "a result of about one recovery in four, in a series of five hundred cases." We are glad to find in connection with the statistics of the operation the results obtained by American surgeons, especially those extracted from the most excellent paper upon croup by Dr. Jacobi, of New York.[2] Added to these are the operations performed and results obtained in Philadelphia, and it is singular how closely they agree as to the proportion of cures—23½ per cent. in the one city, 21.4 per cent. in the other.

The danger of the operation *per se* is then canvassed, and shown by statistics, and upon the testimony of eminent surgeons, to be very slight. We suggest that the deduction from this testimony cannot be applied to the wide range of general practice. It will not do to expect the success of skilled operators from the general practitioners who operate but a few times in a lifetime, and as to statistics, it is as natural as it is devoid of doubt, that very many cases in which death occurred during the operation have never been reported. We quote the summing up in regard to

[1] The Treatment of Croup. By Fordyce Barker, M. D., Clinical Professor of Midwifery and Diseases of Women in Bellevue Hospital Medical College, etc. Pamphlet; reprinted from American Journal of Obstetrics.

[2] American Journal of Obstetrics, May, 1868.

this point, and are glad to be able to call attention to the fact that the authors do not limit themselves to showing the legitimacy of the operation, but take the higher ground that its proposition and performance are sacred duties, however painful they may be to perform.

"If, then, it is the uniform testimony of those experienced in the matter, that the operation is in itself alone but slightly dangerous to life, so that its performance adds but little to the danger of the patient; if it affords immediate relief to the suffocation which threatens to be soon fatal, and at least gives additional time, during which the gravity of the disease may subside; if, further, as we think has been most conclusively shown by the statistics quoted, it has unquestionably saved the lives of a considerable number of those upon whom it has been performed, it is difficult to avoid the conclusion, that it is our imperative duty to resort to the operation under certain circumstances. * * *

"Our own plan, then, is to try faithfully all medical means; and being satisfied of their powerlessness, and of a certainty of a fatal issue to the case without the performance of tracheotomy, to inform the parents of the inability of our medical means to afford relief, and to propose the operation to them. * * Should they throw the whole responsibility upon us, we should without hesitation advise the operation."

None too strongly is put the relief gained for the poor sufferer from the horrors of slow suffocation, even when the operation fails to avert death. From the only case in which we performed it our experience is fully in accordance with the author's—the parents were thankful it had been done for the relief alone, although life was not saved.

The period of the disease at which the operation should be undertaken is then carefully considered. To follow Trousseau's rule of operating as soon as the certainty of false membranes in the trachea has been established would certainly insure the performance of it many times unnecessarily; on the other hand, the chances of success are diminished as the strength of the patient has been expended by delay. The most judicious course is that indicated in the quotation already made; the laryngeal obstruction being so great as to threaten life, and medical means having failed to arrest the progress of the disease, the time for the operation has arrived. It is carefully and correctly laid down that unbroken persistence of the dyspnœa is a clearer indication for the operation than mere severity of this symptom when paroxysmal in character.

It is also plainly taught that it is never too late to operate, however desperate the case may appear:—

"Should we be called to a case where the last stage of asphyxia has been reached, it is still not too late to perform the operation. Thus, in one of the cases that occurred in our own practice, and which ended favourably, this condition was fully developed, and the bluish skin, drowsiness, and insensibility to pain, showed that the patient had already sunk into very advanced asphyxia."

They quote the forcible words of Archambault: "We should never operate too late; it is never too late to operate, so long as death is not actually present." This authority reports[1] sixty-five cases of tracheotomy in city practice (to be distinguished from hospital practice on account of better constitutions, etc. of the patients), with twenty-one cures: "nearly five-sixths of these patients had arrived at the end of the asphyxiated stage of croup; that is to say, that, to judge by the intensity of the symptoms of asphyxia, life could not be much longer maintained." The proportion of recoveries in these cases varies so little from that of the operation in general that M. Archambault goes to the

[1] Archives Générales de Méd., Juillet, 1868, p. 123.

opposite extreme from Trousseau, and advocates delaying the operation to the last stage of the disease, the stage of confirmed asphyxia. There will be less difference of opinion in regard to his other proposition based on these results—"*It is never too late* to operate!"

The contra-indications to the operation are then considered. In regard to some of these there has also been a recent great change of opinion in the profession. An age less than two years, for instance, was not long since considered a contra-indication, and there was no record of recovery in a patient so young. We find, however, a table on page 111 of this work which gives fourteen successful cases below the age of two years, one of them being at seven months. Undoubtedly this age, in a given case, would be one of the circumstances rendering the prognosis unfavourable, but "there are so many successful cases on record that the most tender age can no longer be regarded as a positive contra-indication."

The extension of the false membranes to the bronchiæ has been considered a contra-indication. In view of this it is of course important to learn the proportion of cases in which such an extension of membranes takes place and the means of diagnosticating their presence. In general terms it may be stated that membranes are found beyond the trachea in one-third of the cases; the individual experience of the authors is higher than this, five out of ten, and agrees almost exactly with that of M. Peter, which was fifty-two times in one hundred and five autopsies. As to diagnosis, it is conceded that there are no means of determining with certainty the presence of these membranes in the bronchiæ; auscultation is not reliable even when the chest-sounds are not drowned by the laryngeal stridor. The indication afforded by increased respiration of the *probability* of their presence is not alluded to, while it seems to be generally relied upon by French observers. In a most interesting discussion of this subject, by the Medical Society of the Hospitals of Paris,[1] from which we have already quoted, several eminent practitioners expressed their confidence in the reliability of this symptom; "the frequency of the respiratory movements is much greater when the obstruction is thoracic than when it is laryngeal."

The following paragraph, then, disposes of this question justly:—

"Since, then, we can learn little or nothing from auscultation or any other means, as to the presence of false membrane in the bronchia, the question becomes one of expediency, so far as this contra-indication is concerned, whether to leave two-thirds of the patients, many of whom could certainly be saved by the operation, to perish without an effort to save them, because one-third must necessarily die, or to perform the operation with very little prospect of success on one-third, for the sake of the chance of saving many of the remaining two-thirds who must otherwise perish."

Without the context the above paragraph may possibly convey the impression that the presence of membranes in the bronchiæ is considered to be necessarily fatal. Of course this is not so; in the preceding page allusion is made to recoveries observed by the authors where this complication was present.

Of broncho-pneumonia, as a complication, almost the same may be said in regard to difficulty of diagnosis and influence upon prognosis as has been said of membranes extending to the bronchiæ. The authors call attention to frequency of respiration as a sign of the presence of this complication, and quote Millard's statement that when it is present the rate of respira-

[1] Archives Gén. de Méd., Juillet, 1868. Translated into Western Journal of Medicine, Oct., 1868.

tion rises above fifty. Archambault, in the discussion already alluded to, says that when the respiration rises above fifty the presence of broncho-pneumonia "is almost certain." Increased frequency of respiration, then, is seen to be of bad import, indicating, as it does, two serious complications.

Profound general diphtheritic cachexia is the most unfavourable condition for the success of the operation, and the general opinion of authorities is in accordance with the well-known opinion of Trousseau, quoted here, that, when the constitution is profoundly affected, the operation ought not to be performed. On the other hand, there are operators who, admitting the desperate condition of the patient, would still offer the operation as affording a chance of rescue. Among these is Jacobi, and his opinion, which will justly carry great weight wherever his writings upon this subject are known, is also quoted. No statistics are given of the operation under these circumstances, and we may therefore be permitted to refer to the results obtained by Spence, stated by Greenhow,[1] of seven recoveries out of eighteen cases operated on, death from dyspnœa appearing to be imminent at the time of operation; and to those of Buchanan, forty cases, thirty-one operations, eleven recoveries, and all those not operated on fatal.[2] They certainly afford encouragement to those willing to undertake the operation under what must be admitted to be the most unpromising circumstances.

The following presents a clear summing up of the whole matter:—

"After a careful review of the entire question we believe that the facts upon record justify the following conclusions: that the condition of success which excels all others is the predominance of the characters of asphyxia; that when these are so marked that death is imminent, the operation is justifiable, despite any complications which may coexist, save perhaps the presence of grave, general diphtheritic infection; and, finally, that when no such contra-indication is present, and the dyspnœa is continuous and increasing, despite all other treatment, the operation is positively indicated, and it becomes the duty of the practitioner to recommend its performance. and, if the decision be entrusted to him, to unhesitatingly assume the responsibility of operating."

We are glad to see such high ground taken, the only ground which can be taken by any one who conscientiously examines the subject. It is in marked contrast to that of a recent author who will "neither insist upon nor directly oppose" the operation. Neither does what we have quoted from this book and elsewhere look as if the operation were falling into disfavour, as stated by the same authority. The return to it, commenced by Bretonneau, continued and aided so much by Trousseau, has extended into other countries, and we point with pride to the share of American surgeons in continuing to practise the operation, and to maintain the favourable results obtained by it.

We need scarcely say that the mode of performing the operation follows; the after-treatment is carefully detailed and some cases are reported. Thus, the disease and its treatment, both medical and surgical, are completely considered, and all the modifying circumstances detailed, a careful study of which will enable the young practitioner to place the individual case anywhere in the scale from "favourable" to "very unfavourable," and to adapt his remedies to the varying forms of the disease and conditions of the patient.

[1] London Lancet, Dec. 1865.
[2] See this Journal, April, 1869, p. 483.

We select also for examination the article on typhlitis and perityphlitis because of the interest attaching to the disease and the value of this contribution to the literature of the subject. Perhaps we are influenced, too, by personal considerations. Not many weeks since we were called to an interesting little girl about five years old who had been rather suddenly taken with vomiting, and febrile symptoms; there was constipation which had resisted the ordinary domestic remedies, tenderness in the right iliac region, and an ill-defined fulness and hardness there. The symptoms had come on during good health, and soon after a tolerably severe jarring fall on her seat. They were aggravated by remedies prescribed for opening the bowels, and which did not overcome the constipation, and the tenderness increased in severity, and extended rapidly over the abdomen. Had we a case of typhlitis? of intussusception? or of that rarest of rare diseases, idopathic peritonitis? An attempt to gain assistance from books showed speedily how meagre was the literature of the subject. We could not find the disease mentioned in any treatise on diseases of children at our command, and in works upon practice only very briefly considered. We consider it, therefore, no small matter for congratulation, that by the chapter here furnished a void has been filled, and that information is at hand for future cases of doubt upon all the points relating to this rare form of disease.

The anatomical and physiological relations of the cœcum and its appendix are first sketched, in explanation of their proneness to certain forms of disease, and the relative frequency and importance of the two in morbid processes are considered. Then follow the causes of the disease, as age and sex; of thirteen cases observed by the authors, two were under six years, six between six and twelve years, five between twelve and fifteen years. Of the exciting causes, by far the most frequent is the presence of foreign bodies and intestinal concretions, the latter varying in size and shape, and consistence; the former being generally the seeds and stones of fruit. One point in regard to them is worth remembering:

"It may not be amiss to remark here, that some intestinal concretions resemble, to a marked degree, the seeds or stones of different fruits, particularly of the cherry, date, and plum; and there is no doubt that many of the bodies found in the cœcum or appendix, and reported as cherry stones, or date stones, have been in reality intestinal concretions."

The pathological appearances are then described, and the course of the inflammation to ulceration and abscess traced, as well as the different course which the pus may take for escape. The histories of these fatal cases of perforation of the appendix from intestinal concretions are then detailed.

Next follow the symptoms of the disease—pain, fulness or tumour, constipation, vomiting, and fever; and they apply

* * "To acute inflammation, both of the cœcum and appendix, as there are no well-recognized differences in the symptoms of these two conditions. The only probable points of difference are, that in inflammation of the appendix the pain is more acute, and the thorough evacuation of the bowels is not followed by the same prompt and complete relief."

We are also told that

"Mere *distension* of the cœcum by hardened feces, without actual inflammation of its coats, may be attended with constipation, severe vomiting, and the presence of a somewhat sensitive tumour in the cœcal region."

The constipation may be relieved, and the vomiting cease, and still the inflammation pass into ulceration; fecal matter is then poured out into the peritoneal cavity with the usual fatal results, or into the peri-cœcal cellular tissue, and abscess is formed and approaches the surface.

"It is necessary to be aware that the approach of a fecal abscess to the surface is not attended with the appearances which usually accompany the pointing of an abscess. Thus, instead of the skin becoming tense, prominent, and reddish, with a distinct sense of fluctuation present, the surface becomes doughy, and dark-coloured, and upon palpation a distinct sense of emphysematous crepitation is often obtained. Upon incising such a point, a discharge of fetid gas and grumous matter follows the puncture, and this peculiarity has more than once led surgeons to believe that they had opened a knuckle of intestine."

The diagnosis is not generally difficult; intussusception is the disease most likely to be confounded with these cœcal inflammations, and *vice versa*. Turning to the article on the latter disease for the points of difference, we find stress laid upon the greater frequency of the vomiting in intussusception, and the frequent discharges of blood in addition to the marked constipation. It is pointed out that in the cœcal inflammations there is—

* * * "A marked degree of fever, and the symptoms of peritonitis appear early in the case; *the patient assumes a characteristic position, with the thighs flexed upon the pelvis*, and the right iliac fossa is the seat of exquisite tenderness, so that the slightest pressure cannot be tolerated. The vomiting and constipation are not so marked and obstinate, * * * and there are no bloody discharges."

We have italicized one portion of the above paragraph, because it was a marked feature of the case under our care and already alluded to. One thigh, however, the right, was alone drawn up on the abdomen, and it could only be completely extended after complete recovery. As, happily, we had no opportunity to verify our diagnosis, this symptom alone seems to be satisfactory as to the nature of the case.

The treatment is to be directed to the allaying of inflammation, the palliation of pain, and the promotion of the natural action of the bowels. Since, in many cases, the disease depends upon the impaction of a foreign body, violent perturbative treatment is clearly forbidden. Depletion, by leeches, is advised in acute cases.

"The experience of all observers agrees in condemning the use of powerful irritating purgatives at any stage of typhlitis. In the early stage they aggravate the pain and inflammation, increase and establish vomiting, and frequently fail entirely in their object."

The administration of laxatives in combination with opium is counselled, and the authors have been led by experience to prefer the compound extract of colocynth with opium, the effect of enemata being brought to assist in opening the bowels.

As to mercury, it is practically rejected; the authors say: "it is difficult to support the practice of giving this drug in typhlitis," although "a small dose of blue-pill or calomel" may be administered in the early stages of the disease, and admit that, "in a large number of the successful cases on record, this was given."

Our own case sustained the principles of treatment here laid down in a striking manner. Laxatives, and enemata thrown high up into the bowel by means of a tube, the nature of the case not being so clear then as now, increased the distress of the child and aggravated the disease;

the administration of opium alone brought amelioration of the symptoms, and it was carried to doses which may be termed enormous, for a child of that age, fully illustrating what the authors say as to this drug: "its use is absolutely called for, and the violence of the local symptoms, the pain and exquisite tenderness, form the best guide as to the amount required." After some forty-eight hours of this treatment, and while the case was yet in extreme doubt, calomel was given with each dose of the opium; in due time it acted upon the bowels, not before opened, producing the characteristic stools, and coincidently with this recovery began.

The subject of intussusception follows, one that is second to none in interest or importance. The chapter upon it is complete, excellent in every respect, and well worthy of examination; but we have already extended this review beyond our intentions. We had marked several other subjects for comment, which must pass with briefest notice. The full mortality tables of different diseases, compiled from the city records of Philadelphia, furnishing valuable statistical information, are well worthy of mention. We should have liked to have said something upon the analogy which is traced between the summer inflammatory diarrhœa of children in our cities and the camp diarrhœa of our armies in the late war. Bad diet, heat, crowding, want of cleanliness, act the same in both cases; the anatomical lesions are stated to be precisely alike in both; yet we would suggest long-continued exposure to the influence of malaria, and powerfully depressing mental causes, as two influences present in the one class of cases and not in the other. We would call particular attention to the fact that Parkes' statement as to the general acid reaction of healthy pasture-fed cows is corroborated by actual examination; and that a careful examination, made by the authors, shows that woman's milk is neutral in the vast majority of cases, instead of alkaline, as generally stated by authorities. The whole subject of diet, and everything relating to the feeding of infants and children, is treated in such a manner as cannot fail to prove of the greatest service to the young practitioner. We here cheerfully bear testimony to the good effects of the gelatine food, recommended in former editions as well as this. For children with bowel complaints we have generally found it the best article of diet we could use, and for infants deprived of the breast it has never disappointed us in more than ten years' experience. The celebrated "Liebig's food" has not always met our expectations; it is difficult to prepare; on the other hand, in some cases, and especially when costiveness is a prominent symptom, it has acted admirably; its laxative properties, of course, unfit it for use in cases of diarrhœa.

We leave then the consideration of special diseases for the purpose of commenting upon the therapeutical aspects of the work, and especially upon some particular medicines and modes of treatment. First of all we may observe that in therapeutics the work is full and ample; there is no sacrifice of the space devoted to treatment for the details of pathological anatomy. The young practitioner will find the various measures of treatment detailed and their value compared, so that he can intelligently choose from them for the case he may have in hand.

There is an especial reason for looking somewhat closely into the therapeutical doctrines of the work; it is found in the following paragraph:—

"When the last edition of this work was published, eleven years ago, a great change had begun to take place in medical opinion as to the proper treatment of disease, and especially of acute disease. In that edition this change of

opinion was referred to, and its effect upon our own convictions and methods of procedure fully acknowledged. Since that period this revolution, as it might be called, has continued to make progress until, at the present moment, no one can candidly express his own views without referring to it."

The change alluded to is, of course, in regard to all the remedies known as "antiphlogistic," and it is our duty to note to what extent this change has gone, and in what position it places us. The leading remedy of the class, direct depletion, need not detain us long. The views of the authors have already been given in the treatment of croup, and if they do not prescribe the remedy, as a rule, in a disease so rapidly fatal as that it is not to be expected they would do so in any. They fortify themselves in their position of occasional use of venesection by reference to Chambers, Bennett, and Niemeyer. Still, it is only very exceptionally that these authorities resort to the remedy in adults, and considering how poorly children bear loss of blood, as shown by accidents and in operations, it should be still more so with them, and we cannot but think that constant mention of it in the list of remedies is more in deference to custom, and old ideas not yet shaken off, than from conviction of its necessity. We have never seen a child bled and never expect to. Where we live, and we think we may speak for a wide region besides, the proposition to bleed a child would be apt to bring a practitioner into unenviable notoriety.

The condemnation of antimony is sweeping, and, so far as young children are concerned, we shall not take exceptions to it, although we have certainly not seen often such serious results from so small doses.

"In the last edition of this work, it was stated that tartar emetic, in the dose recommended by some of the highest authorities of the day, had been found by us a very dangerous drug. Time has but confirmed this opinion. At that time we were in the habit of administering it in doses of a forty-fifth or sixtieth of a grain every hour or two hours."

"Antimony, even in these small quantities, sometimes causes a very peculiar general prostration, perhaps without any vomiting whatever, or with only a rare effort at that act, the patient would refuse all nourishment, become very pale and weak, grow limp and motionless, take on a haggard and pinched expression of face, pass into a state in which it would pay no attention to what was going on around, be very peevish and irritable when disturbed, get a very frequent and feeble pulse, and look to an experienced eye as though a very little deeper degree of such prostration might end fatally. After seeing this condition a few times, and finding that the withdrawal of the drug and the use of small doses of brandy was followed by rapid improvement we learned the greatest caution in the use of the remedy. Of late years we never give tartar emetic at all."

We make these extracts from the chapter on pneumonia, and it was not to be expected that we should find mercury relied upon for the cure of that disease. It has already been seen that it is not relied upon for the control of croup, and it is explicitly rejected in bronchitis. From the chapter on pleurisy, we extract the following:—

"The experience we have had since we last wrote has not at all increased our faith in this remedy [mercury]. We believe that as time goes on and knowledge grows, there is good reason to think that the good effects formerly ascribed to calomel in such a variety of diseases, were due to the medicines given with it, and particularly the opium (without which it was not often used), the ipecacuanha, the salines, and even the antimonials."

From all this we are to infer the entire rejection of mercury as an *aplastic* agent; a denial of any power of this medicine to control inflammation. We certainly did understand this to be the ground taken by the

authors from its entire exclusion from the treatment of so many inflammatory diseases. Yet on turning to the treatment of simple meningitis we find the following, parts of which we take the liberty of italicizing:—

"The remedy [purgative] usually given and most highly recommended is *calomel*, which is chosen for its sedative and alterative properties. * * * After the purgative doses have been given, it is important to continue the mercury in smaller quantities, *with the view of obtaining its specific influence upon inflammation.*"

The query suggests itself here whether this has not been admitted by an oversight in the revision of the work. If not, then why is not the "specific influence" brought to bear upon other inflammations? Certainly some explanation seems necessary for the entire and unconditional rejection of a remedy in so many inflammatory diseases the power of which over the inflammatory process is so expressly acknowledged.

In the brief paragraph quoted above there is another important admission as to calomel—its "sedative and alterative properties" when used as a cathartic. It does not stand alone in the work. We quote from the treatment of convulsions:—

"The best purgative in severe cases occurring in hearty children is *calomel*. It is advantageous because of its easy administration, its speedy operation, and the *powerful sedative influence* which it exerts upon the whole economy."

This saves us any argument to prove that calomel *has* a special power and influence as a cathartic, as indeed almost every individual cathartic has, and that that influence is one profoundly affecting the whole system, affecting it, too, beneficially, as a general rule, in inflammatory and febrile affections. We are forced then, to inquire why it is not prescribed in inflammations generally. We do not find it so prescribed. In the treatment of laryngitis with spasm mercurial purgatives are declared unnecessary; in pneumonia a little castor oil or syrup of rhubarb is said to be sufficient; and this powerful influence as supplemental to, or as a substitute for other antiphlogistic remedies seems generally ignored. To this comment we must add a word upon the exclusion of it from the treatment of typhlitis already detailed. We believe it will be everywhere conceded that if there be any remedy likely to "stay down" when vomiting is a prominent symptom, and any remedy likely to do good, when that vomiting is associated with constipation, it is calomel. Yet we have seen compound extract of colocynth is preferred to it. With all due deference we cannot but say that this looks like an undue prejudice against mercurials—an antagonism which has been carried beyond the limits of sound judgment.

The great leading remedies for the control of inflammation being rejected, it remains to inquire what is left to us for the management of this morbid process. In some cases, as pneumonia, sulphuret of antimony; in others iodide of potassium, the salines, and ipecacuanha, with the general care and management of the patient excellently detailed. We do not find that distinct recognition of the doctrine laid down by some recent authors, that we can do nothing directly to control this process, and that our powers are limited to placing the patient in conditions favourable to recovery. We are left then to fight it and carry on the combat with hygienic measures, salines, and a few purgatives which must not be mercurial. The question forces itself upon us whether, in following this plan, we should be free from the reproach that the pursuit of our profession is a "meditation upon death."

We regret then to have looked through the volume in vain for any

directions for the use of some other medicines having no mean reputation in inflammations. Digitalis, veratrum viride, or aconite are not there, or certainly escaped our observation. These are all depressors of temperature, and modern research has re-established the Galenic doctrine, that fever *is* increased heat. The two latter are powerful depressors of the circulation, and of respiration; in thoracic inflammations doing just what the latest and most enlightened advocates of venesection claim it does for the labouring organs, lessen the work they have to perform, and applies as nearly as we can to these organs the great surgical principle of rest. Moreover, does not recently gained knowledge of the influence of the organic nervous system upon bloodvessels indicate that we shall find remedies for the control of inflammation among such medicines as these? That the antiphlogistic battle will hereafter be fought in the nervous instead of in the vascular system? It will not do to object that these remedies are too powerful for children; certainly not while we prescribe hydrocyanic acid, and strychnia, and arsenic. Like these, they will require care and great watchfulness. The veratrum may not be adapted for children of the more tender ages, but abroad it is already known as the "American remedy for pneumonia," and there as well as here has most excellent authority for its use in diseases of children.[1] Aconite as a remedy for the control of inflammation has many warm friends; although we may not be able to partake of the enthusiasm of some,[2] we are partial to it; but so far as general use in the profession is concerned, Hirtz[3] undoubtedly expresses the truth: although its powers in moderating the frequency of pulse and respiration, and in lowering temperature, have been well established and show its value, it is still a remedy which "belongs to the therapeutics of the future."

But we have something more to say in regard to mercury. Besides its use as an aplastic agent, and as a cathartic, it is used quite as frequently, and has been considered quite as important as an alterative in some of the bowel affections of children. The views of the authors as to this use of the remedy will be seen from the following quotations, which, although somewhat lengthy, cannot well be omitted:—

"*Calomel* has been so highly recommended, and so long employed in these cases [entero-colitis], that we feel some hesitation in saying how often it has disappointed us. Certainly we have found in many children that it was of no evident use, and in the old-fashioned doses of a grain or half a grain, we think it only adds to the irritation of the bowels. In doses of the twelfth and eighth of a grain with chalk and opium, every two or three hours, we formerly thought it was sometimes useful, but we cannot resist the impression which years have given us, that the useful agents in these instances have been the chalk and opium, and especially the opium."

There is, in this chapter, a very feeble recommendation of small doses of blue pill. The remarks on the treatment of cholera infantum close as follows:—

"The opinion was expressed in the last edition of the work, that the doses of calomel usually recommended were too large for young children, and were apt to aggravate the existing irritation of the digestive mucous membrane, and that such doses of a remedy acknowledged to be a powerful sedative,

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[1] J. Lewis Smith on Diseases of Children; Ellis on Children; B. Fordyce Barker on Croup.

[2] Sidney Ringer, Handbook of Therapeutics.

[3] Nouveau Dict. Pratique, tome i.

could not be proper in a disease which constantly tended towards exhaustion and collapse. It was also stated that the small doses which we did recommend had been declared by some critics to be entirely too small, and that to this we could only reply that the larger and more careful, and we hoped, the wiser our observation had been in the last few years, the more thoroughly convinced were we that the larger doses, such as were formerly recommended and used by nearly all writers and practitioners, were not only unnecessarily large, but most seriously objectionable. We went on to say that the indiscriminate use of this remedy, in nearly all cases of the gastro-intestinal diseases of children, became with some, we believed, a mere routine habit—that they never tried what might be accomplished without it, but went on pushing the drug in constant doses, when the cases if trusted to simpler means, or were left to the effects of nature, would often do much better, we had learned to believe, than when these delicate organs were made the receptacle of doses that could not but tend to keep up the nausea, and vomiting, and diarrhœa, which form so important a part of the morbid phenomena. The experience we have had since that time has but confirmed us in these opinions. Indeed, we have been so often disappointed in obtaining any good effects from this drug, and have so often had reason to think that instead of allaying nausea and vomiting it increased them, and added to the exhaustion, which is one of the dangers always to be contended against, that we have virtually abandoned it. We will add that the conclusions reached by the Edinburgh Committee of the British Medical Association as to the want of power of mercury to increase the flow of bile from the liver, which has been the great theoretic argument for its use in the gastro-intestinal diseases of children, have tended to confirm our doubts as to its utility in cholera. Not that we think that conclusions reached by experiments on animals should weigh against the careful experience of competent medical men, but when they come to confirm doubts raised in ourselves by actual observation of the sick, we cannot but take them as confirmatory evidence of the correctness of these doubts."

That these are honest convictions derived from careful observation we cannot doubt; the sincerity and the competency of the observers are beyond question. They have, too, the very high authority of J. Lewis Smith to sustain them, so far at least as failure to recommend mercurials in these diseases is concerned. Nevertheless, this rejection of mercurials in these diseases is opposed to our own convictions and experience, and to the general practice of the profession in all the cities of the South and West, where these diseases prevail during the summer months. The former may be worth but very little; still if there is anything in therapeutics, of which we have felt assured—anything which we have felt confirmed in from bedside observation—it is the value of small doses of calomel to check vomiting, and to correct the secretions in the summer bowel-complaints of children. We appeal with great confidence to the general verdict of the profession, and we make this appeal with the more confidence, because we have consulted many practitioners of great clinical experience upon the point, and we trust if our appeal be not sustained by the great majority of the profession, it will be made manifest, that we may at least indirectly help to clear up this point.

Because calomel has been indiscreetly used, because it has been prescribed as a matter of routine, and continued day after day, as intimated, instances of which we have seen, and the patients have been thereby injured, it does not follow that there is not a proper way to use it, and a way in which it will prove beneficial. If, again, the question were only in regard to the use of small doses of mercurials in cases of *chronic* diarrhœa we might not object so strenuously. And here we cannot fail to remark that, following the first quotation we have made on entero-colitis, are

extracts from Dr. Woodward's works on camp diseases, showing that mercurials are injurious in chronic army diarrhœa, and the inference is conveyed, although not distinctly drawn, that therefore they are injurious to the diarrhœa of children. Similar as the diseases may be in symptoms and anatomy, we must maintain that the results obtained by medicines in a disease essentially chronic is no fair criterion to judge of their value in the same disease which may come under treatment in its earlier stages. It is at the beginning of the disease (inflammatory diarrhœa, "entero-colitis"), or occasionally for a brief period during its course, that small doses of calomel do good by changing the character of the discharges, checking the vomiting, and modifying the condition of the digestive organs, as shown by cleaning of the tongue, and thus preparing the way for antacids, opiates, and the more direct astringents.

In considering this question it is also to be carefully kept in view that the advocates of the mercurial treatment are not bound to explain its mode of action. Undoubtedly the current explanation, as to "increasing the secretion of bile," is incorrect; it must be said that recent researches, among which those of J. Lewis Smith are most important, have proved that in these cases the liver is not affected to the extent generally supposed, and in many cases not at all. But there are other organs and structures to be influenced besides the liver. The mucous membrane of the stomach, of the whole digestive tract, and the intestinal glandular system are to be considered. We cannot, therefore, see any bearing upon this question, even to "confirm doubts," of the results obtained by the Edinburgh committee by experiments upon dogs. The question is one of "rational empiricism," to be decided by observation at the bedside, and not by experiment upon animals. Were the ground taken by Thudichum established, that "calomel is not a cholagogue, but *diminishes* the secretion of bile," it would not affect the question in the slightest; the only point is, "Does it do good?" and to insist upon this is only to insist upon the simplest rules of logic.

We write thus in favour of small doses of mercury under a full sense of the responsibility resting upon us. We live in a region where the profession is paying a heavy penalty for abuse of this remedy; where reckless routine resort to it, during a period when medicines were scarce and difficult to obtain, and "bilious" disease more prevalent than now, has built up a schism in its ranks; and where many years must pass before the popular prejudice arising from misuse of the remedy will be allayed. With all this before us we must still maintain that it is a safe remedy when used properly, a valuable remedy, and in no disease more valuable than in the bowel complaints of children.

We might here say a word perhaps with benefit to the young practitioner, who, seeing such wide differences of opinion upon the action of such medicines as these and others—alcohol, for instance, the therapeutic merits of which are just now so keenly debated—may be tempted to doubt and fall into a state of sceptical carelessness. There are better lessons than this to be learned. Such discrepancies of opinion mark the restless activity of our science and our art, and are a measure of the progress we are making. From them he may learn to duly estimate the complexity of the problem to be solved when the powers of a medicine are to be ascertained, and especially its value as a remedial agent when administered in combination. In all these cases the *facts* must be the same; it is the observation and the interpretation of the facts which differ; "where human reason begins certainty

ends." He may therefore learn the necessity for close observation and caution in coming to conclusions. He may find cause for congratulation, too, that he belongs to the "broad church" in medicine, bound by no dogmatic formula to any narrow sect, but allowed the widest latitude of opinion—a latitude which affords at once the fairest opportunity for the development of individual skill, and for the relief of human suffering.

Led on by the interest of the subjects we have selected, and by the desire to give material for judgment as to changes from former editions, we have extended this review far beyond our original intention. We have noted some few omissions, found some things unavoidable in a period of transition, and in adapting a work to present views which was written when other doctrines prevailed, and upon some points have been obliged to differ widely from the authors. Nevertheless, there is but little to find fault with compared with what there is to praise, and perhaps if we said all we felt we might endanger the value of our praise by over-laudation. It is the most complete work upon the subject in our language; it contains at once the results of personal observation and the experience of others; its quotations from the most recent authorities, both home and foreign, are ample; and we think the authors deserve congratulation for having produced a book unequalled for the use of the student, and indispensable as a work of reference for the practitioner. J. C. R.

Art. XX.—*Fourth Report of the Metropolitan Board of Health of the State of New York*, 1869. 8vo. pp. 594. New York: D. Appleton & Co., 1870.

If the application of recognized sanitary principles to the improvement of large cities might have been, a few years ago, regarded as more or less experimental, this is certainly now no longer the case. Besides the remarkable check given to cholera in London, Paris, and elsewhere in 1866, our own cities exhibit a similarly impressive record. In that cholera year the mortality of Philadelphia, owing to sanitary precautions, was 300 less than that of the year before, notwithstanding several hundred deaths ascribed to cholera. And now, the report before us attests that, with an increase of population, the aggregate mortality of New York is decreasing.[1]

That there is need for unremitting efforts of the same kind still, is palpable. In the week ending July 23, 1870 (the hottest week of this year), the number of deaths in New York was 1048, of which more than three-fifths were of children under five years of age, and nearly 400 were from cholera infantum alone. This has been exceeded only once in New York, in the third week of July, 1868; when, with a mean temperature of 88°, the number of deaths was 1142.[2] For the corresponding week of the present year, 1870, the mortality in Philadelphia was 601; of which 352 deaths were of children under the age of five years.

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[1] We find, however, that while in the statement made to this effect (p. 8), the total mortality of New York is put at 24,601 for 1869, in another part of the work (p. 262), the sum for the four quarters is 25,167. The first number is for the twelve months ending October 1, 1869.

[2] Report, &c., p. 252.

But perhaps the most important proof of a satisfactory progress in sanitary improvement, and certainly that which gives the greatest hope for the future, is to be found in the cheerful acceptance and growing appreciation of the measures taken by the Board of Health, by those among whom they operate—the poor and ignorant inhabitants of the worst districts, and the richer, but sometimes little more enlightened, owners of the crowded dwellings.

"In the quiet, unostentatious visits of the experienced medical Sanitary Inspector sources of disease are discovered and removed, badly ventilated apartments are thrown open and exposed to that source of life and health—*pure air*—which, through interest, cupidity, or ignorance, has been denied admission; habits of personal cleanliness have been inculcated; advice upon general sanitary questions, vital to every person, has been given, and, from its disinterested and acknowledged professional value, has been received in a grateful and appreciative sense by those to whom it was directly and infinitely valuable.

"Looked upon as these visits were, at first, with distrust, as an interference with personal rights, the sanitary inspector is now welcomed into those dark abodes of misery and neglect; doors are thrown wide open, and hidden sources of disease are exposed to his view. His suggestions and advice are received and acted upon to a degree that it was hardly possible to believe. In the inspector they recognize their true friend." (p. 65.)

Such is the language of Dr. Moreau Morris, Assistant Sanitary Superintendent; and it is confirmed by the testimony of nearly all the sanitary inspectors, whose reports, numbering more than twenty, are given in this volume. For brevity, we select only a few passages, from the report of Dr. E. H. Janes:—

"The results of my three and a half years of experience, as Sanitary Inspector, have been eminently satisfactory. The subject of ventilation, and the improvements made therein, have received full attention, and contributed largely to the comfort and cheerfulness of tenement-house occupants. This is seen in the diminished amount of sickness and mortality in tenement houses since these improvements have been introduced. It is seen in the expressions of satisfaction and gratitude with which the inspector is greeted at his final visit for re-inspection regarding the extent and character of the improvements made. It is also seen in the increased willingness on the part of owners to not only comply with the requirements of the law, but to do whatever may be necessary for the welfare and comfort of their tenants. As a foul atmosphere and filthy surroundings not only beget physical disease and death, but also tend to degenerate the moral and intellectual status of those constantly exposed to such influences, so will pure air, uninterrupted sunlight and cleanliness, conduce to improve the health, increase the physical as well as the moral and intellectual energies, and thus, to a certain degree, elevate the entire condition of the tenement-house population. Owners are beginning to appreciate this fact, and hence are not only willing to comply, but often manifest an anxiety for information concerning the spirit and requirements of the law, without waiting for a formal notice from an officer of the board. By this course they not only comply with the law, and thus escape the penalties, but, by improving the condition of their tenants—morally as well as physically—they prepare the way for a more speedy and available income from their investments." —(pp. 111, 114.)

In one district only, that of the township of Greenburg, has opposition been met with to the action of the Metropolitan Board; and this was due, not to the people of the district, who manifested their desire to obtain its useful service, but to the local official authorities, backed by three or four resident physicians; the antagonism being referred there to political influences.

On the subject of tenement houses there is much interesting matter in this Report. A law passed in 1867 provides that "no dark bed-rooms shall be allowed to exist; but that every sleeping apartment shall, unless open to the air, have transom windows connecting it, either directly or indirectly, with a ventilated hall. Also, that all privies shall have sewer connection; and that all cellars are uninhabitable that do not fulfil certain hygienic conditions." Under this ordinance, the board has closed the most dangerous cellar lodging-houses of the city, thus bringing nearly three thousand of their wretched occupants into more healthful dwellings above ground. With all the care yet taken for their improvement, certain houses yet are "dens of death," and certain streets "death's thoroughfares." Three of these (p. 61) afford a mortality, for particular piles of tenements, at the rate of 40, 59, and 75 deaths annually to 1000 inhabitants. Even in a naturally salubrious locality, as in the 15th Ward, many of these houses present a death-rate of 38 in 1000—double the average mortality of the ward.

The difficulties of ventilation in these houses are very great, because of their construction and crowding; and the right disposal of night-soil, or "conservancy," continues to be a problem. Water-closets are undoubtedly the best, if they are kept in order; but they are not so, in such a population. Lighting, cleansing, and house-drainage are all, as yet, insufficient. For privy use, probably the "school-sink," advocated by Dr. Janes (p. 113), would be the best arrangement in such dwellings. It is a long tank, with an outlet at one end, secured by a plug and a hydrant or draw-cock, for the supply of fresh water at the other end. It needs the care of a reliable person to attend to it daily. Such a contrivance was used with very good effect in some of our United States general hospitals during the war. On all accounts, one of the most important of all tenement-house improvements must be, as urged by Mr. Worthen, engineer of the board, and others, that every owner of tenement houses should be obliged to employ a responsible head or overseer to protect the neat, and compel the dirty to keep clean; and to be accountable to the Board of Health for the execution of its enactments on the premises. For garbage, Dr. Morris, assistant Sanitary Superintendent, approves, and carries out, at his own house, the disposal of it all by burning. Mr. Worthen thinks that, in the tenement houses, "if in every suite of apartments there were ready means of getting rid of all liquid waste into the sewer-pipe, all the garbage might be disposed of in the cooking-stove." Reference is made in a note to an invention of W. R. Gilbert, Darjeeling, India, for burning the products of dry sewerage, as well as to Hickey's process of "carbonization or dry distillation;" by which, conducted in close retorts, a gas is made, useful for illumination or for heating furnaces. The poudrette left is said to be innoxious, and a good fertilizer.

As to tenement-house mortality, Drs. Harris and Norton remark upon the instructive fact that the gain to life of the city, in the midsummer period, of 1869 over 1868, occurred as a whole *in the tenement houses;* the total gain in these dwellings exceeding the aggregate difference in the mortality tables for the period in the two years. (p. 253.) It is to be remembered that a very large proportion of those who die in hospitals, and other public institutions, are sent thither from the tenement-house population. In these, also, similar facts appear.

"In 1868 the percentage of deaths in the public institutions was 17.33;[1] in 1869 it was 16.15, a gain of 1.18 per cent.

"In 1868 the percentage of deaths in the private houses, hotels, boarding-houses, and other residences of New York, other than tenement houses, was 24.21; in 1869 it was 31.06, a loss of 6.85 per centum.

"In the former year the percentage of deaths in tenement houses was 58.46; in the latter it was 52.79, a gain of 5.67 per centum." (p. 345.)

Putting these statements together, we find that it is almost exact to say that while the total mortality to be ascribed to the tenement houses in 1868 was 75.79 of the whole mortality of the year, in 1869 it was only 68.94, a gain of 6.85 per cent. Dr. Norton employs another graphic mode of expression for his estimate of sanitary improvements already accomplished, in these words (p. 337):—

"Whereas 39,272 windows were put into dark bed-rooms of tenement houses during the year; and whereas, there was a saving of 1265 lives in that portion of the population that lives in tenement houses, it follows that one life was saved for every thirty-one windows so constructed."

If this be an approximation only, as of course must be the case, yet it is not likely to be an exaggeration of the real benefit conferred by such improvements.

Under the head of "Contagious and Infectious Diseases," the Report mentions repeated outbreaks, of moderate extent, of both typhus and typhoid fever. They were traceable to certain "centres," spreading thence, as alleged, by personal communication. In the case of typhoid, this is expressed by Dr. E. Harris, the Sanitary Superintendent, as occurring by "the movement of the sick, or of their attendants, who in turn became sick." These sources of fever were promptly controlled by sanitary means; the chief of which was repeated and abundant disinfection, with heavy oil of coal tar and sulphate and sesquichloride of iron. Relapsing fever does not appear to be named anywhere in this Report. The greatest amount of interest centres upon the progress of, and successful conflict with, an epidemic of smallpox. At the beginning of the year an increase in the amount of this disease led to the public announcement by the Board of its advice to all to attend to vaccination, with the offer of it, gratuitously, at certain hours and places. But the classes and individuals most requiring protection were not thus reached. In May the contagion was found to be lurking in nearly a hundred different localities in the city. Then the Board, very wisely, undertook general vaccination, by systematic house to house visitation. This was accomplished by eighty physicians, of whom sixty were especially appointed for the purpose. Nearly one hundred and seven thousand families, and thirty thousand houses, were thus visited, making the needful inspection of almost half a million of the population of the city, and actually vaccinating more than thirty thousand. No coercion or intimidation was used, but all were invited and urged to avail themselves of the protection of vaccination against the threatening prevalence of smallpox. The material employed was carefully selected by all the vaccine physicians of the city; *eighth-day lymph* only being used, not more than thirty-six hours from the arm; and the result was inspected at the end of a week in all cases. The lancets used were frequently cleansed with carbolic acid.

In consequence of this thorough work, it is stated (p. 209), that "smallpox, which threatened to overspread the city, was at once arrested, with

[1] That is, per cent. of the whole annual mortality.

the exception of here and there an isolated case, exceptions always to be met with in a cosmopolitan city, independent of any epidemic influence."[1]

We are clearly justified in contrasting this result with the well-known history of the fearful epidemic of smallpox during the present year, in Paris; where, with deaths numbering, from this cause, between one and two hundred in a week (in one week in July, 267), a total of more than seven thousand cases occurred between January and May, with a mortality, in the hospitals at least, of one death in six or seven cases. There is ample reason to believe that all this was due to the *unsettlement of public confidence* in vaccination, brought about, especially, by exaggerated statements and rumors concerning vaccinal syphilis. Upon this subject, we have at hand an exhaustive *résumé*, by M. Brouardel,[2] from which we may cite the conclusion given by M. Depaul, in his report published in 1865.

"I do not suppose that it will come into the mind of any one, that we are to renounce the immense benefits of vaccination. Millions have been inoculated with vaccinia; and although it has been already too often repeated, vaccinal syphilis constitutes at last but a very rare exception."

All the best authorities now agree that it is never the vaccine virus, but *blood* taken improperly with it, that accounts for this rare danger. Brouardel adds, that "almost in the immense majority of cases a syphilitic 'vaccinifère' does not give syphilis to those inoculated from it." In the Paris hospitals, according to the same writer, *cow-pox* is used exclusively. If this be altogether or in part obtained by inoculating the heifer with human variolous matter, this may make a difference in the result. Chauveau's elaborate experiments,[3] attested by a committee consisting of MM. Viennois, Meynet, Delore, Lortet, &c., have shown that variolous inoculation of the cow does not cause vaccinia—often no eruption at all—and that what does occur is variola, and has produced smallpox in children inoculated from its pustules. Danet[4] of Paris, after an independent investigation, arrived at the same conclusion; and so did Dr. Cutter, of Boston, who, after inoculating fifty cattle with virus of smallpox with no eruption, vaccinated the same animals with the true, spontaneous cow-pock virus, and had the characteristic vaccine disease to follow. Our reason for making these citations is not only the importance of their subject, but the fact that Dr. E. Harris differs (p. 215 of *Report*) from the judgment given by Dr. Loines in the Report of the same Board for last year, in favouring the renewal of the stock of vaccine virus by smallpox inoculation of the heifer. The strong doubts existing as to the validity of this process, and its many inconveniences even if reliable, ought, we believe, to exclude it from use; while the occasional *rejuvenescence* of the current supply of virus from *spontaneous vaccinia* of the cow stands upon quite other grounds, and is justifiable and desirable, although degeneration of the human virus, with proper care, has not yet been proved to occur. At all events, the experience of New York in the past year confirms the truth of

[1] Referring to the statistical tables of the Report, however (pp. 250, 254, 259), we regret to find no explanation of the fact, that while the deaths from smallpox in the 13 weeks ending July 3d, were 45, and in those ending October 3d, 32, in the last quarter of the year, ending December 31st, they were 109. Of these deaths, 70 occurred in two wards, in which very few cases occurred early in the year; possibly, therefore, in them, vaccination may have been less complete.

[2] Revue des Cours Scientifiques, 25 Decembre, 1869, *et seq.*

[3] Revue des Cours Scientifiques, 1 Jan., 1870.

[4] London Medical Times and Gazette, Feb. 23, 1867.

the general principle, that *the prevalence of smallpox is in inverse proportion to the universality of vaccination.* In J. Simon's words,[1] "A local prejudice against vaccination would be a reason for inquiring into the skill with which, in the prejudiced locality, vaccination had been administered." A full observance of the "Jennerian" rules everywhere is alone required, we believe, to obtain the fulfilment of Jenner's own prediction, that the annihilation of smallpox must be the final result of the practice.

Another subject upon which it is natural to look to this report for information, and some discussion of principles in view of recent facts, is Quarantine. The most direct reference to it (pp. 28, 29) is very brief. As to yellow fever, the following language occurs :—

"Vessels from the West Indies frequently brought yellow fever into port during the summer months, but the care taken at quarantine to cleanse and disinfect them was so efficient, that the public health suffered no detriment from this cause."

Again, pp. 48, 49: "The restraints which are placed upon ships and goods from ports infected with yellow fever, under the requirements provided in the Code of Health Ordinances, were applied as leniently as could be justified." "This scourge may justly continue to be dreaded, though it seldom strikes. It does not respect sanitary regulations nor medical skill in such manner as to warrant any relaxation of the rule which excludes the infected ships from the docks in the commercial districts of New York and Brooklyn. Fortunately the sanitary art of protecting ships and cargoes against infection may yet be so practised as to give greatly increased, and perhaps, perfect security against this scourge of the American tropics."

It is also mentioned that some of the emigrant ships having fatal typhus and scurvy on board gave more anxiety, and did more harm this year, than all the yellow fever that has reached the port of New York in the past three years. Waterside inspection now generally finds the sanitary condition of vessels from the West Indies good. Hard-earned experience of gulf-traders has taught many of them, that cleanliness in every part of the ship is essential to health; and their vigilance is reinforced by the severe restrictions of quarantine.

It may be wise to avoid unnecessary discussion of the nature and occasion of these restrictions, the topic having sometimes given rise to popular agitation. But late facts show that the much-to-be-desired harmony between the interests of commerce and sanitary regulations has not yet been reached. During the present summer several vessels, destined for New York, being restrained by quarantine, put off their cargoes at Perth Amboy, New Jersey. One of these (the barque *Wavelet*) was afterwards forcibly seized under the orders of Dr. Carnochan, health-officer, and hence has resulted litigation on the part of her owners. The local dangers of quarantine have also been painfully demonstrated this season near Philadelphia by the infection of the lazaretto, from a West India brig (the *Home*) detained there; the port-physician, Dr. Thompson, the resident nurse, and several others losing their lives by the disease. It illustrates somewhat the *local* nature of this infection to observe, not only that these cases all occurred near the site of the tainted vessel (two men who left being, soon after, taken ill in the city, and dying without any other cases following); but, further, that the local sanitary condition of the lazaretto on the Delaware is worse this year than ever before, being made so by the unprecedented flood of last year, the subsidence of which

[1] Blue Book, 1857.

left an unusual amount of vegetable matter to decompose. Thus, a *nidus* was afforded for the transported miasm of the infected ship.

Not proposing to enter into an argument on this subject (although, as above intimated, the debate upon it has been so far only adjourned, not finished), one or two reminders may perhaps not too much anticipate the time when it may be forced again upon the attention of the profession and the public. In the quotations made in the Report before us from the Health Ordinances of New York, nothing is mentioned to show whether persons as well as cargoes are detained at quarantine. But we may take it for granted that they are so, without direct information, as such was certainly the case with vessels detained on account of cholera in 1866; when, on one vessel (the *Virginia*) so held, more deaths occurred from that disease at quarantine than had taken place during the voyage. To say nothing of this danger to life—we might rather say this almost certain condemnation of a number of those on board to death—the presence of the whole population of a vessel must interfere with its thorough purification and disinfection. Every sound reason, therefore, sustains the propriety of the resolution passed, almost unanimously,[1] by the Third National Quarantine and Sanitary Convention, held in New York in 1859. The substance of this was, "that the personal quarantine of cases of yellow fever may be safely abolished, provided that *fomites* of every kind be rigidly restricted."[2] Among those who most strongly urged the passage of this deliberate declaration, on the ground of *experience*, was Dr. E. Harris, the present Sanitary Superintendent of New York, always one of the most enlightened advocates of reform in public hygiene. Farther back, however, in the medical literature of this country, in a communication in this Journal[3] more than forty years ago, Dr. Griffith foreshadowed what, we venture to believe, will be the ultimate conclusion of sanitary science upon the subject. In that paper, after rightly insisting that all vessels from tropical climates, whether from healthy or unhealthy ports, should be obliged to stop at quarantine until thoroughly cleansed and ventilated, Dr. Griffith adds: "*Passengers should be permitted to leave quarantine*, unless when labouring under disease." This is the yet lacking reform. For the place of inspection and purification of vessels, it is undoubtedly of importance that a locality be chosen, as is the case with the quarantine anchorage off Staten Island, at a considerable distance from the city—if possible, remote from any inhabited locality.

Many other topics, dwelt upon at some length in this Report, might detain us, not without interest; as, the Year's Vital Statistics, including those of marriages and births; experimental investigation of the condition of the air in schools, theatres, &c.; the quality of Croton water, and of city milk; the prevention of the dangers of kerosene oil; the gas nuisance, disinfection, and sewerage. We can ask the reader's attention only to very brief remarks upon a few of these subjects. The carefully prepared report of the register clerk, J. Bowne, upon marriages and births, confesses the yet great imperfection of the returns, although they improve somewhat from year to year. Nothing positive can, therefore, be based upon them. We may merely say, in passing, that the figures (pp. 359, 360), as given, rather favour than oppose the theory of Dr. N. Allen,

[1] On motion of Dr. A. H. Stevens, of New York.

[2] Proceedings, &c. of the Third National Quarantine and Sanitary Commission, New York, 1859.

[3] American Journal of the Medical Sciences, Nov. 1827.

that the foreign-born population of our cities affords a larger proportion of births than the native families.

Physiologists as well as sanitarians may find interest in the investigation elaborately made by C. F. Chandler, Ph. D., chemist to the board, into "the sources of unhealthfulness in crowded assemblies" of the metropolis. The most particular attention was given to the comparative amount of *carbonic acid* in the places examined. After comparing, for this purpose, the processes of Brunner, of Regnault, Bunsen, and of De Saussure and Pettenkofer, Dr. Chandler declares his preference for a modification of the method of Regnault. Its essential principle is the absorption of the carbonic acid by caustic potassa, and the measurement of the amount of this gas absorbed, by the rise of a column of water in a graduated tube. By this apparatus a large number of schools and theatres were inspected; some of the former yielding six, seven, or eight times, and some of the latter twelve—even fifteen times (Bowery theatre, *parterre*) the normal proportion of carbonic acid. It is further observed that "when the different portions of a room were at different temperatures, the greater proportion of carbonic acid was most frequently found in the warmest localities." This was the case with the air near the heating apparatus (steam-coils), and "air taken from near the ceiling was always found more highly charged with carbonic acid than that in the lower portions of a room, and the difference was often very marked." (p. 400.) Great care was evidently taken in these experiments; so that it is with hesitation, and not without distrust, that the inquiry suggests itself whether, as the method of measurement was by diminution of volume under absorption of carbonic acid, it was not possible for the change of temperature itself, notwithstanding the precautions taken, to account for a part of this diminution of volume of the air on immersion in water. The results are certainly interesting; and no one can deny their accuracy, fairly, without their repetition under at least as favourable circumstances. "The churches," Dr. Chandler writes, "shall be held sacred from criticism." Sufficient reason for this will not be apparent, to those who have met, in some places of worship, with an atmosphere quite unfit for healthy respiration. Neither were the tenement houses visited for this kind of exact inspection. This may be regretted, in view of the statistics of the subject, as we are told in another part of the volume (p. 88), of sleeping rooms with but 100, and living rooms with but 175 cubic feet of space; the average of nearly eight hundred such houses being, for living rooms, 370, and sleeping rooms 220 cubic feet of air space.

Of the "city milk" of New York the result of the examination is to show that no "injurious" adulteration at present exists in it; but that, on the average, to every three quarts of pure milk there is added one quart of water. Dr. Chandler estimated that this fraudulent addition costs its consumers annually about four millions of dollars.

The "gas nuisance" occupies more than a hundred pages of the Report before us; much of it in fine print. The bulk of this consists of the evidence given at a hearing before a referee of the "Metropolitan Gas Company," whose process was condemned as a nuisance by the Board of Health. We may spare our readers even an abstract of this testimony. From an attentive reading we gather that it shows the "wet lime" process to be the most offensive; the "dry lime" to be attended also with stench from time to time; while the use of hydrated sesquioxide of iron, with sulphate of lime and sawdust (Laming's method), or that of "bog-iron

ore," is free from foul odours. Yet it does not appear, from the evidence of Professors Silliman, Rand, and Wurtz, and from that of Professor Odling, previously published, that the odours of gas-works, even with the lime process, are entitled, however disagreeable, to be called serious nuisances in the sanitary sense—that is, deleterious to health.[1]

Passing with some reluctance over the remaining by no means unimportant matter of this volume, we may recur, in conclusion, to the great advantage possessed by the city of New York in the establishment of laws conferring real authority upon its Board of Health—a condition of things dating only from 1866, and indeed matured only after a severe struggle between some purely selfish interests and those of the community at large. Vast as the field of operation is, the Board does not yet congratulate itself upon overcoming nearly all its difficulties. In the words of Assistant-Sanitary Superintendent Stiles (p. 229):—

"When the well-paved streets of our city are swept or flushed every morning before daylight, and, at the same time, every dead animal and all ashes, garbage, and filth are removed; when a few large abattoirs take the place of numerous scattered slaughter-houses; when gas companies locate their works far out in the country; when livery-stables empty manure-vaults at night: when factories of all kinds consume their own smoke and fumes, or carry them high into the air; when cow-stables have been banished, and condensed-milk establishments have multiplied among the rich farms around the metropolis; when places of public resort are supplied with special and adequate provision for ventilation; when no tenement houses exist which do not subserve the health of their occupants as well as the gain of their owners; when every house and lot in the city shall be sewered and drained; when free public baths shall be provided; when unwholesome or adulterated food shall not be exposed for sale, for fear of detection and punishment; when all these very practicable and desirable results shall have been obtained, there will still remain abundant demand for watchfulness on the part of the sanitary authorities to hold fast what has been gained, and to improve what is still inadequate and imperfect."

Remembering that the important work of cleaning the streets is not yet under the control of the Board of Health, and that the vexed questions of quarantine and sewage utilization have not yet been fully settled, it is easy to realize the necessity for continued effort, which is thus forcibly set forth. But a large obligation is already due to the members of the New York Metropolitan Board, for using so well their opportunity to apply, and thus most effectually to advance, enlightened sanitary science.

H. H.

[1] The suggestion that the air of gas-works is preventive of epidemic cholera cannot be fully verified. In 1849 the writer of this review attended, in an attack of well-marked cholera, a man employed as one of the hands at the Philadelphia gas-works, where the lime process is used.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXI.—*Transactions of the Obstetrical Society of London.* Vol. XI. For the year 1869. 8vo., pp. l., 345. London, 1870.

THE present volume of this excellent series does not yield to any preceding one in value or in interest. There are about the usual number of contributions, illustrated by well-executed plates and wood-cuts, three of the former being coloured. In giving a critical analysis of its contents, we shall, for the convenience of our readers, group together kindred subjects and cases, without reference to their original arrangement.

Delivery by the Cephalotribe.—Dr. J. BRAXTON HICKS exhibited a fœtus delivered by this instrument. The head was firmly ossified, and the mother's pelvis small, with a conjugate diameter of the brim not over three inches. After a vigorous labour of ten hours, without any engagement of the head, version was attempted, but failed through the too firm contraction of the womb. The long forceps was next tried, but in vain. Without removing them, the head was perforated and traction again resumed without result. The cephalotribe was therefore substituted. Upon bringing the screw home, the slight resistance showed that the base of the skull had not been gripped; the blades were thereupon reapplied, and then the resistance was much increased. When the blades were approximated traction very readily delivered the head. The instrument had acted in the oblique diameter of the head, one blade passing below the orbital ridge, the other on the opposite side of the occipital bone. The bones of the vault and the frontal bone had been crushed in, but the integrity of the scalp was so preserved, that no spicula could be felt.

Dr. Barnes exhibited the head of a child delivered by cephalotripsy, with the instrument (Hicks') attached. The case was that of a wretchedly deformed rickety creature, aged 19; whose conjugate diameter was estimated from 1 25″ to 1.50″, and the space on either side of the promontory about the same. Although she was in the *last* week of her first pregnancy, Dr. Barnes determined to act at once, and passed a bougie into the uterus on the afternoon of September 13th. Next day at 3 P. M. there was some uterine action; at 6 P. M. the medium dilating bag was applied, and in ten minutes room enough for work was gained. After perforation, the cephalotribe was applied three different times. Some pieces of the cranial vault were removed by the craniotomy forceps, and then the head being well crushed was without much difficulty extracted by the cephalotribe. The whole operation lasted one hour. The mother did well, although a miserably feeble creature. Dr. B. believed the pelvis in this case was the smallest in which cephalotripsy had been successfully performed in England. Dr. Hicks' instrument worked admirably, but he thought a less curve would be better, and thereupon exhibited a cast of a head, grasped by the straight instrument of Dr. Kidd, of Dublin.

Dr. G. HEWITT remarked that one practical deduction, drawn from Dr. Barnes' case, was the advisability of giving the cephalotribe very little curve. It was to be recollected that, in most cases of pelvic deformity, the pelvis was not only narrow but shallow, and a nearly straight instrument would be generally applicable.

Dr. HICKS observed that his late instruments were not so curved as the early examples. As to the objection, that the concavity of the curved blade would sometimes look backward, in shifting the position of the child's head, he thought that if the blades were always applied in the transverse diameter of the pelvis,

a quarter turn would bring this concavity to one or the other side, so that the blades would be virtually straight so far as regards their antero-posterior aspect.

Dr. J. Matthews Duncan presented a specimen of his cephalotribe, which is modelled on the heavy, long-handled French form. He found fault with the English ones, whose blades are too flexible, and, when closed, are too far apart. He thought that accoucheurs, who wish to discover what resistance can be gained in difficult labour from thorough cephalotripsy, would have to use his instrument, or the French one, or some other equally efficient.

Dr. J. Braxton Hicks read a paper commenting upon the above instrument. In it he contends that it is needless to have a cephalotribe so powerful as to crush in the base of the skull, for as the base measures only one and a half inches in its vertical height—when the vault is crushed in—by bringing the head down edgewise, or face first, we shall have only that small diameter to oppose to the conjugate diameter of the pelvis. He objects to the French blades as not being sufficiently incurved at the tips to be used as tractors, and shows how important it is to use them in that manner. For if they be removed in order to allow the uterus to expel the head, or in order to resort to traction by the crochet or by the craniotomy forceps, the crushed head begins to expand to a considerable degree; and this after-expansion is such that all advantages of the compression are lost. Hence an instrument, with incurved blades, capable of less approximation, and adapted as a tractor, is more efficient, as proved by his own and Dr. Barnes' successful cases, related above. He maintains further, that it is rarely possible, with the cephalotribe, to seize the head in its transverse diameter; and that the reduction of the base in other diameters, by crushing, is a matter of great difficulty. That in the majority of cases, when crushing the base is aimed at, it will be found that the base tilts under pressure, thus escaping the lateral crushing; and that then the vault is pressed in on the base, which effects a reduction practically sufficient for delivery when the head is brought down edgewise. Finally that the force, required for the crushing in of the vault, is not so great as that required for the lateral crushing in of the face and base, which is unnecessary.

Uterine Polypus Complicating Labour.—Dr. Gervis exhibited a polypus uteri taken from a patient, whose labour had to be terminated by craniotomy. It was of large size and had extensive attachments to the cervix and vaginal walls. On the fifth day after confinement the tumour was removed by the simple wire écraseur, but the patient succumbed, several days afterwards, to an attack of peritonitis. During the first four months of gestation the patient had profuse hemorrhages.

Fibroid Polypus attached to the Fundus Uteri successfully removed.—Dr. D. L. Roberts exhibited this specimen with the following history. The patient—aged 35—had enjoyed good health until five years ago, when she had menorrhagia and irregular metrorrhagia, supplemented later by muco-purulent discharges. She complained of constant sacral pain, and of lumbar pain after any exertion. Defecation normal; but the catheter was often required to empty the bladder. She had cramp in the right leg, and experienced great pain in moving or flexing this limb; which were her most irksome symptoms. Dyspnœa now setting in, together with copious flooding and excessive muco-purulent discharge, she was admitted into St. Mary's Hospital. Dr. R. discovered a large fibroid polypus, attached by a short thick pedicle to the fundus. Under chloroform several ineffectual efforts were made to draw down the growth to incise it. The chain of an écraseur was with difficulty now passed around the pedicle, but it snapped, and a stronger one was applied, which soon cut its way through. Owing to its peculiar shape and size much difficulty was experienced in removing the tumour, but this was ultimately accomplished by the midwifery forceps. The polypus weighed 24½ oz., was six inches long and twelve in circumference. It was bilobular, with the larger lobule situated on the right side, and the smaller to the left side of the pelvis. The pressure of the large end of the polypus upon the psoas and iliacus muscles of the right side, explained the cramp and pain in the corresponding limb. The vagina was plugged with lint soaked in a solution

of the perchloride of iron, and the legs bandaged together. The convalescence was perfect.

Dr. MEADOWS also exhibited a large fibroid polypus removed by the single wire écraseur. Ten days previously this tumour had been completely intra-uterine, and the os closed over it. The dilating bags had not merely induced dilatation of the os, but sufficient uterine action to cause the extrusion of the tumour. In his opinion they were more efficient than sponge- or other tents.

Rapid Growth of an Extra-Uterine Tumour.—Mr. CHAMBERS exhibited this specimen, which illustrated, in the first place, the three divisions into which these growths are divided—submucous, intra-mural, and sub-peritoneal; and, in the second place, the difference between the fibroid proper, the white fibroid, and the fleshy or red fibroid. Aged fifty, the lady had never been pregnant; two years ago her catamenia increased in duration from five to twenty days. A year ago Mr. C. passed up a sound six inches, found the fundus uteri midway between the pubis and umbilicus, diagnosticated an intra-uterine tumour, and a second tumour, as large as the first, attached to the fundus, freely movable in the abdominal cavity. After this examination she rapidly enlarged, became anasarcous, suffered from dyspnœa, from great abdominal pains, and died with gangrenous patches over each leg. An autopsy revealed a very large white fibroid, occupying the abdominal cavity, closely adherent to the abdominal wall over its whole extent, as well as to the bladder and descending colon, and attached to the fundus uteri by a short thick pedicle. It was in a state of degeneration and contained ten or twelve pints of pus. The special points of interest are the rapid growth of the extra-uterine fibroid, simulating ovarian tumour; and its malignant character, which is generally denied.

Fibroid Degeneration of Uterus, with Sub-Peritoneal and Interstitial Tumours in a State of Degeneration.—Dr. A. W. EDIS presented this specimen, with the following history. Patient aged fifty; married twenty years without children. For ten years has lost blood every day from the vagina, and ultimately sought advice for bearing-down pains, dyspnœa, and difficulty in defecation. In June, 1867, by pressing up the tumour above the pelvic brim, these symptoms were relieved. Nine months after this, the same process had to be repeated on account of similar pelvic obstruction. Slight peritonitis ensued, which yielded to rest and opium. Her health now began to give way; frequent vomitings, dysuria, cramps, œdema of left leg, and muco-purulent vaginal discharge set in; and she died quite suddenly Dec. 1868. The uterus was found to be of the size of a large cocoa-nut; on the posterior wall of the fundus was a sub-peritoneal fibroid tumour in a state of calcareous degeneration; within the wall was another in a state of sloughing and disintegration; whilst the whole interior of the uterine cavity was in a state of slough, the surface being covered by a thick viscid muco-purulent secretion. The uterine walls were at least an inch thick.

Fibroid Outgrowth from the Fundus Uteri.—Mr. T. SPENCER WELLS presented the specimen, weighing 34 lbs. 10 oz., which he had removed from a single woman, aged 36. Eleven years ago half of her lower jaw had been removed on account of a fibrous tumour. An abdominal tumour was discovered five years ago, which slowly enlarged, but during the last six months it had rapidly increased. The tumour did not feel so hard as a fibroid, but, although pronounced ovarian, no cyst was found large enough to warrant tapping. There was no vascular murmur, and it seemed to move independently of the uterus of normal size. When the tumour was exposed Mr. W. was surprised to find that it was not ovarian, but that it sprang from the posterior surface of the fundus uteri. The pedicle was secured temporarily by a clamp, and the tumour cut away. Some bleeding points, where adhesions had been separated, were secured by an acupressure needle, and the clamp was removed. Bleeding vessels were secured by hair-lip pins and twisted sutures, which also served to fix the bleeding surface to the abdominal wall by transfixion. At a subsequent meeting Mr. W. exhibited the uterus and ovaries of this patient, which were healthy. She died the third day after the operation from fibrinous deposits in the right side of the heart. Superfibrination of the blood had been feared from the first, on account of the rapid rise of the temperature of the

body, from 98.4° to 101°, within twelve hours, and then rapidly upwards to 105.8°. This was accompanied by hurried breathing, rapid pulse, and scanty urine, charged with urates and pigment. The first sound of the heart became feeble more than twenty-four hours before death, and was inaudible for fully twelve hours. In all operations when peritonitis might be expected Mr. Wells feared its direct effects less than its tendency to cause excess of fibrin in the blood, and separation of the fibrin in the heart. He further stated that this condition of superfibrination was epidemic, and then prevailed croup, diphtheria, and other diseases characterized by fibrinous exudation. Dr. Routh said that this tendency to fibrinous deposits was perhaps remediable; diphtheria and rheumatism being curable diseases. The latter was amenable to ammonia and to an alkaline treatment. In peritonitis, accompanied with flocculent deposits, the fluid was often acid, showing that the blood was less alkaline than normal, and pointing to the use of the alkalies, which might be useful in preventing ante-mortem clots.

Case of Puerperal Fever cured by the Injection of Ammonia into the Veins. By Dr. W. Tyler Smith.—A full abstract of this case has been given in the No. of this Journal for October, 1869, p. 563.

Dr. Barnes, in commenting on this case, adverted to the practice of saline injections in cholera, and stated as his opinion that the injection of salines and transfusion ought to be largely extended in puerperal fever, convulsions, and obstinate vomiting. He doubted whether the fluid used by Dr. Smith was the best, and should prefer a fluid like Dr. Little's, of a specific gravity similar to that of blood, adding a little ammonia and alcohol, so that it should not be too concentrated.

On the Complication of Pregnancy with Ovarian Disease. By Mr. T. Spencer Wells.—An abstract of this paper has been already given in the No. of this journal for October, 1869, p. 562.

Dr. J. Braxton Hicks stated, as the result of his experience, that in no case had he seen any evil consequences arise, where ovarian disease coexisted with pregnancy. He gives the details of seven examples in which living children were born at term, without any special difficulty; and only one in which he was obliged to resort to tapping previous to delivery. A very interesting discussion by the members follows these conflicting remarks of Mr. Wells and Dr. Hicks.

Mr. R. T. Warn also gives a history of a case of labour complicated with ovarian disease. The patient first noticed a swelling two years previously; during pregnancy she became very much enlarged, but was not tapped. Labour set in prematurely; pains of very little power; after ten hours the os was dilated by the water bags and delivery effected by version. The child was small and lived only six hours. The next day the patient was seized with a fit of shivering, accompanied by pain and vomiting; the breathing became hurried, pulse feeble and very rapid, and she died that night, forty hours after delivery. An autopsy showed a hole in the cyst as large as a quarter, and the cavity of the abdomen filled with a thick oily-looking fluid of a chocolate colour. Mr. W. thought that the cyst had not ruptured during labour, but at the time when shivering and vomiting took place.

Dr. Routh had seen two cases of this kind, in both of which two common facts were noticed: 1st. Both the children were premature, and not viable. 2d. The ovarian growth was rapidly excited by the concurrent pregnancy. If this were invariably the case, the treatment clearly indicated was induction of premature labour.

Dr. Barnes had seen many such cases, and he thought it generally best to induce premature labour, for nature would rarely tolerate the double burden of a growing uterus and a growing ovarian tumour. Whilst pregnancy went on, there was no security against some formidable catastrophe; such as the bursting of the cyst, or the twisting of the pedicle. Finally, since spontaneous premature labour often occurred, followed by immediate relief, we should accept this indication as a guide to practice.

Other analogous cases of great practical interest were related at this meeting, and discussed by the members.

Cases of Extra-Uterine Pregnancy.—Dr. A. Brown was called in haste to

see a woman who had just died. She was between four and five months advanced in her third pregnancy. On one or two occasions she had complained of pain in her side, and of faintness after exertion. She was discovered in the water-closet in a fainting condition; rallied under stimulants, and complained of abdominal pains, which she attributed to indigestible food. Anodynes relieved her and brought on sleep, but she soon awoke with the same symptoms unabated, and died thirteen hours after the first attack. The autopsy revealed a pregnancy of the right Fallopian tube, the cyst had burst and the pelvis was full of liquid blood.

Mr. J. L. WORSHIP relates the next case. The patient, aged 29, was in her second pregnancy; had last menstruated Aug. 28th. On Oct. 6th Mr. W. was called to see her, and found her suffering from sickness, and pain in the lower part of the abdomen, with a sensation of great distension, attended by a great deal of pain over the liver and under the right shoulder blade. The desire to pass water was frequent; vagina hot, and os uteri exquisitely tender. Diagnosis, uterine and hepatic congestion. In spite of treatment, her symptoms daily grew worse, and she died rather suddenly on the 29th from what was supposed to be rupture of a pelvic abscess. On *post-mortem* examination the right Fallopian tube was found occupied by a fœtus; the cyst had ruptured, and the abdomen was full of clotted blood. The uterus was lined with a deciduous membrane.

The third case with accompanying specimen is reported by Dr. W. MARTYN. Patient aged thirty-four; confined fifteen years previously; menstruated in the beginning of July. Complained of frequent sickness, general discomfort, distressing pains in the region of the stomach and pelvis, and severe neuralgic pains in the right arm, which neither baths nor opiates relieved. Mammæ gave ample evidence of pregnancy, and in due time quickening took place, but Dr. M. had never seen so much distress in a natural pregnancy.

Feb. 4. He was summoned to see her, as her pains were so severe that she could not sleep. Belly not so prominent in the mesial line as in ordinary pregnancy; fœtal pulsations unusually distinct; os soft and large, but not dilating; uterus enlarged; a diagnosis was made of ordinary pregnancy. Next day, while moving about the room to relieve the great distress in her belly, she suddenly fainted away, was lifted into bed, gasped a few times and died.

At the *post-mortem*, a well-nourished child was found loose in the cavity of the abdomen; on tracing the cord it was seen to enter a rent in an enormous cyst, but whether ovarian or tubal was uncertain. The uterus was much enlarged, but exhibited no trace of deciduous membrane. A committee appointed by the Society to examine the specimen, inclined to the opinion that it was a pregnancy of the left ovary; and that the interior of the womb presented traces of a decidua which had passed away unobserved.

Drs. ROUTH and PLAYFAIR both deemed it justifiable in such cases to perform gastrotomy, since death was almost sure to occur in the course of pregnancy, but that the difficulty of the diagnosis would always stand in the way of attempting this operation.

Dr. HEWITT observed that, in most cases of extra-uterine pregnancy, the uterus enlarges, and the os participates in these changes, so that the diagnosis was much embarrassed; indeed he could recollect only one or two instances in which the case had been diagnosticated during life.

Dr. MARTYN remarked that in his case the uterine sound would have cleared up all doubt, but that the possibility of an intra-uterine pregnancy would always prevent the use of this method of diagnosis.

Observations and Remarks on Cases of Twins.—Dr. BRUNTON reports the following results of his investigations. In 36 cases of twins, 25 were of like sexes with two amniotic sacs. Out of 11 cases of different sexes, in 10 there existed one sac, and in 1 two sacs. In 15 cases the placentæ were noted as follows: In 5 of the cases of like sexes in which two sacs coexisted, the placentæ were either double-battledore, or there were two distinct ones. In 4 of the similar cases the placenta was single. Of the remaining 6 cases in which the existence of two children of opposite sex was observed with one sac, 4 had one placenta and 1 two; while in the odd case, where male and female

existed with two sacs, one placenta was found. His conclusions are that if a male ovum comes down from each ovary at one and the same time we have an explanation of the existence of *twin males* and *two sacs;* so if female ova descend. But, if two ova come down from the same ovary, we have twins of opposite sexes, and one sac of membranes; for he had found no case of twins of the same sex in one bag of membranes.

Dr. Playfair objected to this that conjoined twins were never of different sexes, which was incompatible with Dr. B.'s theory; because, according to it, conjoined twins should always be of opposite sexes.

Dr. Brunton differed in this opinion, since he thought in those cases a male ovum at the same time came down from each Fallopian tube and coalesced.

Case of Conjoined Twins.—Dr. J. F. Rogers was called in to attend a case of labour, and found a right foot presenting. On account of insufficient expulsive pains, ergot was given, which powerfully increased uterine action, but there was no descent of the fœtus, not even where firm traction was made on the limb. On passing up the hand into the vagina, another *right* foot was discovered, which presented its toes to the symphysis pubis, whilst the toes of the first looked towards the coccyx. Failing to return this foot, Dr. R. brought down a third, and then, by using powerful traction, dragged down the nates and loins of one child so low that he could feel the band by which the children were united. Some difficulty was experienced in extracting the arms and shoulders. No further traction was now made, but the bodies of the children were drawn up well over the abdomen, so that the posterior head should engage and pass out first. By this means there was no locking of the two heads at the brim, and delivery was readily accomplished. The twins, *both females*, were still and weighed eight pounds. All the external organs were perfect; the uniting band, composed of "cartilage skin," extended from the top of the sternum to the navel, into which one common cord entered. There was but one placenta, and that large and heavy. The perineum was but slightly lacerated. There was a rudimentary cord, two inches long, about one inch below the navel, which seemed to indicate that they were original twin conceptions, but that the membranes separating them being imperfect, the bodies were brought into close contact with each other, and coalesced, by reason of the strong formative power existing at that period of uterine life.

Dr. Playfair remarked that this case was an instructive one, as showing that, in double monsters, a presentation by the feet was most favourable. For not only is a correct diagnosis more easily made, but by lifting up the body well over the mother's abdomen, the sacral head engages first. Hence, if the head presents, and we can determine the nature of the case, version should be resorted to.

Allusion is made in this and in the preceding case to *coalescence* as the element necessary to the production of conjoined twins; strictly speaking, however, they are neither *conjoined* nor *united* twins, but *double monsters*. It is now a well-established fact that they are never caused by a fusion of twin embryos, brought into contact with each other through the accidental absence or absorption of the two chorions. Leading teratologists now hold that every double monster is the product of a *single* ovum, whose vitelline membrane contains two primitive germinal traces instead of one. For further facts about this interesting subject we refer the reader to the able articles on Diploteratology, by Dr. J. G. Fisher, in the *Transactions of the New York State Medical Society* for the years 1865, 1866, 1867, 1868.

Case of Triplets, by Dr. Martyn.—Labour set in almost one month before term. The first child, a male, presented by the head; the second, a female, by the breech; and the third, a male, by the head. Each child had separate membranes. The males shared a joint placenta, but the female had its own. All the children died within twenty-four hours.

Hereditary Twin-Bearing Family.—Dr. Curgenven attended a lady who was delivered of twins for the fourth time; she had severe flooding and barely escaped with her life. This was her sixteenth conception during a married life of sixteen years. Her mother had twins *once;* her aunt *once*, and her great-grandmother *twice*.

Twins, together with Secundines from a Case of Hydrops Amnii.—This example of a rare disease is reported by Mr. WM. HODGSON, although the patient was under the care of Dr. Hewitt. She has had ten children and five miscarriages, and was nearly seven months advanced in pregnancy. Has increased rapidly in size during the last month, her legs were greatly swollen, and the abdomen measured fifty-four inches in circumference. Her respiration hurried and oppressed; skin hot and dry; tongue covered with white fur, and very œdematous, pitting on pressure. Dr. Hewitt diagnosticated hydrops amnii, and proposed, after feeding up the patient for two days, to make a minute puncture in the membranes, so as to allow the uterus time to contract as it was emptying. The membranes, however, ruptured spontaneously, drenching the bed and flooding the ward. Next day labour-pains set in and a bag of membranes presented. This was ruptured; about twelve ounces of fluid escaped and also a dead fœtus, presenting by the feet. In about ten minutes more another fœtus was born by the vertex; which lived only a short time. The first fœtus was shrivelled up, and had been dead for some time; the second was well nourished, and weighed twice as much as the first. Dr. Hewitt attributed the sudden increase in the size of the mother to the death of the fœtus, and probably by the laws of exosmosis and endosmosis. Seven examples of this rare disease are quoted from Dr. R. Lee, and three from Dr. David W. Hall; all of them presenting very much the same symptoms.

Dr. RASCH also gives a history of a case of *Hydrops Ammii*, in which one of the twins had died from twisting of the cord close to the umbilicus. In this instance, however, it was the sac of the dead fœtus which was considerably larger than that of the living fœtus.

Rupture of the Uterus; Decomposition of the Fœtus; Blood Poisoning; Recovery.—Under this title is a paper by Dr. ROBERT GREENHALGH, describing the following interesting case: A woman, seven months advanced in her sixteenth pregnancy, while lifting a heavy weight, was suddenly seized with an agonizing pain in the belly, "as if something had given way," followed by a "show." She remained in a collapsed state for several hours, but rallied under the free exhibition of brandy and opium. For two days she felt very weak, when a chill, followed by a burning fever, occurred. The pain, which had lulled, again returned with increased violence, and so acute that she could not bear the weight of the clothes. The attending physician pronounced the attack one of acute peritonitis; bled her twice, and gave calomel, opium, and salines, by which the pain and febrile symptoms were subdued. Her breasts now enlarged and became tender. During the succeeding fortnight she somewhat improved, but repeated vomitings, with typhoid symptoms, ensued. Dr. Greenhalgh was now called in; he found her lying on her back, with her knees drawn up; pulse 140; tongue dry and brown; skin hot and dusky; urine scant and highly coloured; stools frequent and offensive; abdomen greatly distended; vagina hot, dry, and much elongated; cervix uteri soft and nearly obliterated; os uteri patulous. No fœtal heart sounds or uterine souffle could be heard, and fœtal movements had not been felt since the accident. Uterine tumour well defined, dull in every part, except over the umbilicus, where it was resonant. The following diagnosis was made: that a rupture of the uterus had taken place, followed by peritonitis; that the fœtus had perished and become decomposed, giving rise to gaseous accumulation in the uterus, and blood poisoning. The membranes were therefore ruptured, giving exit to a large quantity of fetid gas, and to some turbid stinking liquor amnii, followed in ten hours by the birth of a very much decomposed fœtus. The vomiting at once ceased; the fever abated under the influence of bark, iron, ammonia, stimulants, and good diet, and the patient got well in six weeks' time.

The next case of *Ruptured Uterus* is related by Dr. J. T. MITCHELL. The subject, aged 42, had been attended by him in six previous labours. Her pelvis was originally small, but it had suffered steadily increasing reduction by *mollities ossium*, so that each labour grew more and more difficult—the last one requiring very energetic efforts with the forceps. Her physician had determined to induce premature labour in the eighth month; but, a few days before the time appointed for this operation, she was frightfully alarmed at a terrific

crash of lightning. She instantly felt an agonizing pain in the pelvic region, and fainted away. On recovery to consciousness, there remained a dull, heavy pain in the same place, which was relieved by anodynes. After two days uterine pains set in, accompanied with hemorrhage. The os uteri was found dilated, and a small portion of the placenta presenting. Upon introducing the hand, a rent was discovered three inches above the os. Version was resorted to, and a still child delivered. As a knee lay in juxtaposition to the rent, probably the uterus had become torn by contracting violently upon it during the spasm from fright. Peritonitis soon set in, and the woman died seven days after delivery.

Dr. Hall Davis, commenting on this case, stated as his experience that, excluding all cases of external violence, rupture of the uterus generally occurred in multiparæ, in whom degeneration of the uterine muscular fibres had taken place. In only one instance had he met with rupture in a primipara; but her pelvis was deformed by rickets, and ergot had been given by a midwife. In this case no structural degeneration of muscular fibre could be discovered.

Peritoneal Adhesions of the Gravid Uterus a Cause of Post-Partum Hemorrhage.—In a very ingenious paper upon this subject, Dr. Graily Hewitt contends that the existence of peritoneal adhesions, binding the fundus of the gravid uterus to the upper portions of the abdominal walls, forcibly keeps it in a distended condition after the expulsion of the child, and prevents that contraction which is so essential, both to the casting off of the placenta and to the prevention of post-partum hemorrhage. He believes that these adhesions are often responsible for so called *atony* or *inertia of the uterus*, *irregular* and *hour-glass contractions*, &c., to say nothing of *adherent placenta*. This opinion he illustrates by two diagrams, and by the history of three cases of rapid flooding, two of which were fatal. In the post-mortem examination of one of the cases the peritoneal surface of the uterus was studded with reticulated bands and strings of a tough fibrous nature. The ends of many of these strings were quite free, as if they had been attached to some fixed point, and had been broken away, proving that these bands had connected the uterus pretty firmly with the abdominal parietes up to the time of labour, and that, when the uterus descended, they were at first stretched and finally broken across. It was evident that, if these adhesions were too strong to give way, the uterus might remain contracted for half an hour, and then re-expand by being pulled back to the top of the abdomen. The inference then is to follow down the uterus, after the expulsion of the child, and to see that it is firmly and permanently contracted. In the discussion which followed the reading of this paper, most of the speakers took ground against the theory advanced by Dr. Hewitt, although a few admitted that the tendency to hemorrhage was greater after pelvic abscess and peritonitis. Mr. T. Spencer Wells said that he had noted upwards of twenty cases of childbirth after ovariotomy, and yet the firm adhesions, resulting usually from this operation, led to no unusual difficulty.

The Treatment of Hemorrhage after Labour.—In quite a long article upon this subject, Dr. Robert Barnes revives the use of intra-uterine injections of the liquor ferri perchloridi. As usual with advocates of a new remedy, he finds some fault with each one of the old prescribed methods for arresting this kind of hemorrhage. *Ergot* "too often fails;" *cold applications* "lead to pleurisy, peritonitis, or broncho-pneumonia;" *kneading the uterus* "is liable to cause metritis;" *compression of the abdominal aorta* is, at best, "a momentary resource;" *plugging* "cannot be trusted;" *faradisation* "was often intensely distressing to the patient;" *turning out the clots* was very good in its way, but did not answer the purpose. The mode of using this styptic is as follows: First, clear the uterus of placental remains and clots, then gently inject the ordinary liq. ferri perchloridi (Br. Ph.) undiluted; or the liq. ferri perchloridi fortior (Br. Ph.) in the proportion of one part to four of water. All air must be scrupulously expelled from the syringe before using it. In hemorrhage after abortions he prefers to *swab out* the uterine cavity with this solution, lest, on account of an imperfectly dilated os uteri preventing the free return of the injected fluid, any bubbles of air should be forced into the circulation. In the

discussion which followed the reading of this paper, so numerous were the members who had used this remedy "for many years" that Dr. B. "was surprised," and said very little "with reference to priority."

Hemorrhage Fatal in Forty Minutes.—This remarkable case is instructive on many points, and shows with what care *post-mortems* should be conducted. A lady eight months advanced in her sixteenth pregnancy, whilst engaged in hanging her bed-curtains, was standing with one foot on a chair and the other on the side of the bed. The chair slipped and she fell on her nates—an enormous flow of blood instantly commenced, and continued until she was dead. Mr. Houghton, who lived not more than a five minutes' walk from her house, was immediately called in, but found her dead. The *post-mortem* showed a placenta normally attached, the membranes entire, and not a trace of coagulum, or spot of blood on the mouth of the vessels, or in the uterus itself. A plug of mucus in the os uteri was not blood-stained; there was no clot or fluid blood in the vagina; indeed the only trace of blood was found in the vulva, slightly gluing the labia together. There were no marks of bruises on the abdomen and thighs. Mr. H. removed the entire uterus and sent the specimen to Dr. Greenhalgh, as a case of obscure uterine hemorrhage. The latter, however, in reply, suggested the existence and rupture of varicose veins, either of the thigh or of the vulva. Upon inquiry, Mr. H. ascertained that the lady had in fact suffered from an aggravated form of this disease; and he now feels satisfied that this was the source of the hemorrhage, but that the seat of the rupture had escaped his notice, as the idea of varices had not occurred to him.

Dr. Hewitt stated that after delivery he had seen considerable hemorrhage from a varix, which had been torn during labour, and the source of the loss was at first by no means obvious.

Messrs. SPENCER WELLS and WORSHIP referred to cases in which they had seen death speedily follow the rupture of a varix in the leg. In one case death took place within five minutes.

On Mechanical Support during Labour.—Dr. WILLIAM WOODWARD opens up this subject with the courtly phrase, that "there is doubtless a marked difference between parturition among savage tribes, and that which obtains in the higher race." Stays and "tight-lacing, late hours, and concomitant evils" play the very mischief with the latter. Hence, of course it requires an "artificial assistance" which offended nature refuses to afford, but which Dr. W., in the inscrutable ways of Providence, has been permitted to discover. This "artificial assistance" can actually be compressed within the narrow limits of a single mechanical appliance; characterized by positively only one "well cushioned pad for the back, and a belt passing round the abdomen," together with sundry ingenious devices of strings and straps, all well illustrated by a woodcut of high order. We advise our readers to study it well, for after the application of this "Obstetrical Back Supporter," all that the physician and monthly nurse need do is to sit still, twirl their thumbs, and bless this labour-saving machine. In the language of the fortunate discoverer, "It encircles the abdominal muscle," "gives a feeling of general support to the parturient woman," "insures generally the due contraction of the uterus," "lessens the danger of flooding," "rectifies malpositions," and "gives sufficient support to the back." "It is very portable and inexpensive," delivers the placenta, "takes away half the pain," "terminates labour shortly after its application," and "*received a notice in the Lancet.*" One who knows, a lady of the "higher race" we presume, says "it helped me very much indeed;" another, "I could not have gone through my labour without it;" indeed, once on, it appears to do everything but cut the cord and dress the infant. We breathe the prayer, that this good doctor's life be spared until he devises some other appliance, evidently within the resources of his ingenuity, which shall not only not discomfit the printer by its name, but shall "take away [the other] half of the pain."

Dr. PROTHEROE SMITH also gives the diagram of an instrument constructed for the same purpose; but we pass it by, as it presents *only* "in its pubic, sacral, lumbar, costal, and sternal pads and springs, all the different *points d'appui* from which a properly adjusted bandage is made to stimulate the

action of the lumbo-abdominal muscle," and has never had "a notice in the *Lancet*."

Report of the Infant Mortality Committee.—A series of questions upon the cause of infant mortality was sent to each Fellow, and this report is an analysis of the replies thus elicited. The proportion of births attended by midwives appears to be very great in Ireland, less in Scotland, and quite small in England. The ordinary treatment of the umbilical cord is generally carried out; the only variety being in the length of the cord allowed to remain, this ranging from one to three inches. In many portions of the United Kingdom the midwives are expected to visit the patient every day until the cord drops off, and they therefore sometimes pull it off prematurely in order to bring their attendance to a close. The infant's binder is universally used, but one physician thinks "that it is often too tight, so as not infrequently to induce convulsions." In country districts some kind of aperient is given to the newly born infant; but this custom is not so universal in the larger cities. Among the married poor suckling is the rule, protracted even to two years, in order to prevent too rapid a recurrence of pregnancy; but a large proportion of women in London have a deficient secretion of milk. Illegitimate children are rarely suckled, but brought up on farinaceous food, and about 80 per cent. perish. The sleeping of infants is almost universally encouraged by cordials and opiates, or by allowing them to remain in their cradles, sucking away at the bottle long after their stomachs are full. The amount of dosing is fearful; in one small town of six thousand inhabitants one chemist sells annually twenty-five gallons of Godfrey's cordial, and another six imperial pints weekly, not including paregoric, Steedman's powders, syrup of poppies, etc. The morals of the United Kingdom do not appear to great advantage; "in many parts of the country it is the *invariable* custom for the marriage ceremony not to be sought until advancing pregnancy renders it desirable; and it is often postponed until after confinement, as by the infant perchance being stillborn the chief reason for marriage is removed;" and illegitimacy is regarded without shame. The poor rarely call in a physician unless the child is seriously ill, and this is done to procure his certificate in case of death. The last topic of the report treats upon the means of preventing so great a mortality. With reference to food, all the Fellows agree that children should be suckled, and if that be impracticable, to feed them on milk and water up to the fourth month, and on no farinaceous food until after that time. With reference to other means, the suggestions of the Fellows vary greatly, and incline more to the enactment or changes of laws.

Teething.—In a sensible, but rather partisan paper, Dr. Selby Norton contends that teething is not a cause of disease in infants, and that the principal fatal diseases attributed to it, such as diarrhœa, convulsions, and bronchitis, "are evidences of, and entirely due to, the universal but unphysiological practice of feeding infants on starch foods." The remedy, therefore, for those diseases is milk and warm water.

In the discussion which followed, and which includes both this and the preceding paper, many interesting statements are made.

Dr. Ballard fully agrees with the author, and observes "that to attribute all the deaths and illnesses, which are usually referred to teething, to a natural process of growth, is actually casting a reproach on the beneficence of the Almighty." He very sensibly suggests "that the apparatus from which the child is fed artificially should be so constructed as to permit the food to be obtained *when the child sucks, and not to yield any when it does not suck.*"

Dr. Brunton draws his lessons from nature. When the child's mouth is toothless its office is to suck the breast; but when the first teeth come, and the child begins to bite its mother's nipple, then was the time to give artificial food, such as corn-flour, with milk, etc. With infants brought up by hand he gives milk and water until the teeth appear.

Dr. Routh said opinions widely differ as to the feeding of infants upon starchy food, and yet on no point was there more evidence than against its use. "1st. The assimilation of starch depended on its conversion into sugar by the salivary glands; and yet infants before the third month secreted no saliva. 2d. Pathologic al researches on infants dying after the use of starchy food proved it passed

through the alimentary canal *unchanged*. 3d. The alimentary canal of a baby was that of a *carnivorous* animal—a short membranous tubular canal, and comparative short length of intestines. 4th. The very food supplied to purely herbivorous animals recently born was *animal*. *A fortiori*, should it be so with omnivorous animals, *ergo*, starchy food should not be given to infants. The moment teeth appeared, *pari passu* anatomical and physiological changes occurred in the infant's body—the stomach assumed more the character of an omnivorous animal, and became bent on itself, the intestinal canal lengthened, and the salivary glands secreted copiously; hence the dribbling." That for artificial food for infants the best was the milk from one cow, with half to one ounce of lime-water, and a teaspoonful of sugar of milk to every half pint of milk, with one-third of water. The idea that it was wrong to feed the child on the mother's milk, and at the same time to give it cow's milk, was fallacious, and his experience had proved that, in all cases, where it was clear beforehand that the mother would lose her milk, it was best to begin early with cow's milk.

Hydronephrosis of the Fœtal Kidneys; Impeding Labour.—This case is reported by Dr. MADGE. A primipara had been in ill health from some renal affection, and fell into premature labour, with a breech presentation. The labour was tedious, the delivery being finally effected by making traction with a silk handkerchief passed around the thigh. The child was still. The difficulty in delivery arose from the enormous distension of the abdomen, caused by the enlargement of the kidneys, which were of the size and shape of a bullock's. They were transparent like a bladder; all the secreting structure had disappeared; nothing but the septa, between the lobules, could be seen; each lobule was converted into a sero-cystic tumour. Upon examination the fluid contained in these sacs coagulated under heat; exhibited no trace of urates; had a specific gravity of 1010, and was loaded with the debris of kidney tissue.

Abscess of Female Urethra, by Dr. CORY.—The patient, of a full habit, experienced pain in making water, with a feeling of fulness at the lower part of her body; had occasional retching, and a desire for the recumbent posture. These symptoms increased in severity for three days, when the doctor was called in. He found her suffering severe vaginal pain; face flushed, countenance anxious, pulse jerking, tongue furred, continual retching, slight delirium, constant micturition, with tenesmic efforts. Urethra of large size, feeling like a great roll, and filling up the vagina; very tender to the touch, whilst the meatus urinarius was buried out of sight in the swollen parts. Poultices and opiates relieved her; and next day, during a violent fit of vomiting, the abscess burst in front of the meatus, giving her immediate relief.

Puerperal Convulsions; Illustrated by Cases, by Dr. J. HALL DAVIS.—This is the longest contribution to the volume of Transactions; and, although not characterized by original thought, is instructive, from the history of thirty-five cases. We have space for only a very brief synopsis of the practical portion of this paper. When the dropsy is great, and yet no convulsions occur, the author thinks "that a proportional quantity of urea is contained in the effused serum, and so, the blood getting rid of a part of the poison, uræmic intoxication is thus averted." The prognosis should be guarded. If the patient lies in a state of complete stupor, with stertorous breathing after the paroxysms, even although the fits are of short duration, the danger is greater than if the convulsions are stronger with a return to consciousness between the fits. The preventive treatment in sthenic cases consists of bleeding, active purgatives, unstimulating diet, exercise, and local treatment of lumbar pains by cupping, leeching, or sinapism. In asthenic cases, mild aperients, mild tonics, counter-irritation to the neck, dry cups and poultices to the renal region. The treatment of the paroxysm in sthenic cases consists of *one*, rarely two, free bleedings from the arm; of brisk purgatives, such as calomel and jalap; strong purgative enemata of soap-water and turpentine; cold applications to the head; flapping the face with a wet cloth, so as to excite inspiratory movements. After this shave the head, and apply sinapisms or blisters to it or to the nape of the neck. After bleeding, the inhalation of ether or chloroform is of great advantage. In asthenic cases bloodletting is contra-indicated; therefore, resort early to chloroform inhalations, and relieve the bowels. If chloroform should not be

borne well, give a full dose of opium, or bromide of potassium in repeated doses. Emetics should not be given unless a meal has just been taken. If labour be not present, rupture the membranes, use Barnes' dilators, and deliver as soon as possible. All the manipulations necessary for this purpose should be done under chloroform. If labour be present, it should be hastened, under chloroform, by turning, or by the long forceps. The placenta should never be taken away, unless the patient is fully under the influence of chloroform, as fatal paroxysms have been excited by the passage of the hand. At the end of this paper is given a very instructive summary of the thirty-five cases.

A New Principle of Treatment in Prolapsus and Procidentia Uteri.—In a case of seven years' standing, Dr. AVELING removed a heart-shaped piece of mucous membrane from the interior wall of the vagina, the base being next to the cervix uteri. The uterus was then returned and secured out of sight by six wire sutures. The success was complete, and this he attributed to a marked retroversion of the uterus, caused by the dense vaginal cicatrix. He, therefore, infers that, if a prolapsed uterus be returned, and can be artificially retroverted, it cannot descend, because it will then lie across the vagina and not in a line with it. When the temporary treatment of prolapse is aimed at, he believes those pessaries act the best which press upon the anterior vaginal pouch, and thus produce retroversion. "For this purpose he uses a piece of stiff wire, with a loop at one end to receive the ends of a band around the waist, and a knob at the other, which rests in front of the cervix."

Reduction of Chronic Inversion of the Uterus by sustained Pressure.—The third day after her confinement the patient got up to micturate, when the womb shot out of the vulva. For six months she suffered from dreadful hemorrhages, and was reduced to the last extremity. Taxis had been repeatedly tried, but without success; finally, elastic bags were introduced into the vagina, and filled with water. In three days' time the uterus was reduced, but the woman died about forty-eight hours afterwards. Dr. Tait, who reports this case, declares that there were no symptoms of peritonitis or of laceration; but Dr. Hicks thought that, in these old cases, there may be adhesions, broken by the reduction, which might cause inter-peritoneal hemorrhage.

In addition to the matter presented to our readers, this volume contains the annual address from the retiring president, Dr. J. Hall Davis, and an address from the president elect, Dr. Graily Hewitt. There are also papers by Dr. Wynne, on an *Inveterate Case of Ulceration of the Cervix Uteri, cured by the Application of the Styptic Colloid;* by Dr. HICKS, on a *Case of Cæsarean Section;* by Mr. RIGDEN, *On the Age at which Menstruation commences;* and by Dr. WESTMACOTT, *On the Whalebone Loop* or *Fillet.* We omit the descriptions of the new instruments, of hydrocephalic infants, anencephalic monsters, spinæ bifidæ, and of knotted umbilical cords, as the first require the accompanying diagrams, and the others possess but little practical value.

In conclusion, we cannot refrain from alluding to the careless manner in which these Transactions have been reported and edited. The punctuation is very faulty; the style often obscure; and the sentences so long and involved, as sometimes to require recasting to become intelligible. On page 55 we read that "Dr. Rasch exhibited a case of Hydramnios," when he simply related the history of a case of Hydramnios, the case itself being quietly at home, some miles distant. On page 218, Dr. Routh is represented as curing such a disease as "*uterine hypertrophe.*" Again, on page 197, the reporter saddles Dr. Protheroe Smith with the following ungrammatical and inelegant language: "The structure of the muscles *become* so deteriorated as to lose much of *its* power of contraction, often shown in the dead-house by the attenuated parietes *of abdomen*, in instances of tight lacing." Further, not content with making Dr. Smith speak of "anti*v*ersion" of the womb (p. 170), he repeats the offence in the form of an "anti*v*erted uterus" (p. 197). Not over-confident in nouns of the possessive case, the reporter hedges his grammar by such alternates as "Dr. Barnes's dilators," and "Dr. Barnes' dilators;" "Dr. Hicks's cephalotribe" and "Dr. Hicks' instrument." Will not some Fellow kindly set him right on this point, and also explain to him that such mistakes in gender as "septæ" and "labiæ" (pp. 56 and 82) are calculated to cast discredit upon so learned a body as the Obstetrical Society of London?

W. G.

ART. XXII.—*On Aphasia, or Loss of Speech in Cerebral Disease.* By FREDERIC BATEMAN, M.D., M.R.C.P., Physician to the Norfolk and Norwich Hospital. 12mo. pp. 124. Lewes: Geo. P. Bacon, 1869.

THE different parts of this essay have, we are told in the preface, already appeared at certain intervals in the pages of the *Journal of Mental Science*, and it is in consequence of the favourable notice which it has received that it is reprinted in its present form. The author's labours are, as he remarks himself, rather iconoclastic in character, for his efforts have certainly been directed rather to the subversion of the four popular theories on the subject of aphasia than towards the establishment of one of his own. The four theories at present held on the subject are stated to be:—

1st. That of Schrœder van der Kolk, who places the seat of speech in the corpora olivaria.

2d. That of M. Bouillaud, who places it in the anterior lobes.

3d. That of M. Dax, who places it in the left hemisphere.

4th. That of M. Broca, who confines it to the posterior part of the third frontal convolution of the left hemisphere.

Many cases are adduced by Dr. Bateman to show that no one of these theories will explain all cases, although something may be said in favour of each one. He asks: "Is it certain that there is a cerebral centre for speech at all? When we talk of the faculty of speech, have we any very clear and definite notion of what we mean? May not speech be one of those attributes the comprehension of which is beyond the limits of finite minds? Does the loss of it necessarily imply organic lesion of structure?" The theory which has the fewest facts to support it, at least so says our author, is the one which has obtained most popularity—that of M. Broca. Seven cases of aphasia occurring in his own practice are reported, in none of which was there any lesion of Broca's convolution. Cases, however, in which disease of the third frontal convolution has existed without lesion of speech are rightly considered more fatal to the acceptance of Broca's theory than cases presenting precisely the converse condition. The impression left on our minds after reading the essay is, that undue importance has been attached to the occurrence of a lesion at the *centre* itself, and too little to the fact that the loss of speech may sometimes be due to disease of the fibres by which this centre is connected with the external organs of articulate language. "Speech"—to quote the language of the book—"is a complex faculty, consisting of two distinct elements, one physical, somatic, and material—a movement; the other psychical—the interior speech—the λόγος; and we must take care not to confound this inward with the outward speech or articulation, which is only a form of expression." Supposing for the moment that Broca is right in placing this centre where he does, it is evident that any disease, of what Jaccoud calls the motor apparatus of articulated language (l'appareil motor expressif), would of course involve the abolition of speech, either alone, or together with the loss of written language, or of the language by signs; for it is scarcely necessary to say the first is not always accompanied by the two latter. The occasional coincidence of aphasia with disease of some other part of the encephalon, does not, therefore, invalidate Broca's theory, unless it can be shown that the lesion does not involve or cause pressure upon the corpora striata, the crura cerebri, the pons Varolii, or the medulla oblongata, or the motor nerves which take their origin from it. A careful study of the cases, both Dr. Bateman's own and those he has derived from other sources, has convinced us, however, that we must regard this theory as not proven, and the same verdict must be returned as to the others.

The essay is divided into six parts. The first three parts are devoted to the bibliography of aphasia and to reports of cases. In the fourth and fifth parts the different varieties of aphasia, its causes, diagnosis, prognosis, and treatment, are treated of. In the remaining part the different theories are criticized, and the anatomy, physiology, and comparative anatomy of the brain are carefully studied, with the view of deriving all the aid these sciences afford

us in removing the obscurity which now envelops the subject of the localization of the faculty of speech.

Dr. Bateman considers that aphasia may be considered under two heads, amnesic, and ataxic; the former includes both the loss of the memory of words and the loss of the memory of the art of how to say them; the latter, those cases in which the loss of speech is due to the want of co-ordinating power over the muscles of articulation. Although all cases may be referred to one or other of these heads, for the convenience of the clinical observer, they may be still further divided into the following varieties:—

1. Aphasia may differ in degree, from absolute speechlessness, to various grades of imperfection in the use of the faculty of language; it may be an ephemeral and intermittent symptom, or it may be a permanent defect.
2. It may consist simply in inability to say one's own name or the names of other people.
3. Or in the loss of memory of substantives.
4. Or in the substitution of one word for another.
5. In the uses of stereotyped phrases.
6. In the perversion of speech. Patients can articulate, but there is no connection between the articulated sounds and the ideas they may be intended to convey.
7. The loss of speech may be the sole morbid symptom, or it may be accompanied by some paralytic symptom.
8. The defect may be limited to the loss of articulate language only, or may extend to written language, and also to the language of signs.
9. There is a variety of aphasia characterized by this peculiarity; that although the subjects of the affection can articulate nothing else whatever, they can give vent to an oath, and thus in the heat of passion or of excitement, words or phrases, not always correct as regards taste or ethics, are ejaculated, and which the patient is wholly unable to reproduce when the stimulus of emotion is wanting.
10. *Aphasia spasmodica*, spasmodic mutism, occurs in connection with hysteria and hypochondriasis, and may be of a more or less persistent character.

The following are among the principal causes:—

1. It may be congenital as in the deaf and dumb, and it is one of the frequent symptoms of idiocy.
2. It may be the consequence of direct injury to the brain.
3. It is a frequent symptom of tumours in different parts of the encephalon, of sanguineous deposits in the brain, and of softening of that organ; of exostosis or of malformation of the bones of the cranium; in fact, of organic lesions of various kinds affecting the cerebral substances, especially the anterior lobes.
4. It may depend upon embolism of the cerebral vessels.
5. It is an occasional attendant upon diseases of the spinal cord.
6. It may ensue as a nervous symptom. Many persons, under the influence of anger, joy, or excitement of any kind, are seized with a temporary incapacity to speak.
7. The epileptic condition seems to be a frequent cause of aphasia.
8. It would seem that aphasia is not an uncommon accompaniment of neuralgia and hysteria.
9. Reflex action, as, for instance, in the mutitas verminosa of Sauvages.
10. Several instances are on record in which loss of speech supervened on atmospheric changes, or on the application of cold or heat to the head.
11. Certain drugs, especially those obtained from the natural order Solanaceæ, would seem, in some instances, to suspend the power of speech.
12. Septicæmia, blood-poisoning, whether from uræmia, as in Bright's disease, or from alcoholism, gout, plumbism, or syphilis, is another frequent cause.

The diagnosis of this affection, of course, presents little real difficulty; the differential diagnosis, however, between the various forms, is not so easy. It is recommended that the urine should be examined carefully, especially in regard to the amount of phosphates contained in it, as an excess would indicate

a disintegration of the brain substance. The thermometer and sphygmograph may also occasionally be of service. The prognosis will, of course, depend upon the cause which has given rise to the symptom, and is most favourable when it occurs as a sequel of continued fever, when it occurs as a neurosis, or is of hysterical origin, or when it arises from any moral cause.

Treatment of a curative character can only be applicable in a very limited number of cases. In some cases, however, the organs of speech have been educated *de novo*, and in this connection it may be well to quote the following from an observation of Dr. Osborne:—

"Having explained to the patient my view of the peculiar nature of his case, and having produced a complete conviction in his mind that the defect lay in his having lost, not the power, but the art of using the vocal organs, I advised him to commence learning to speak like a child, repeating first the letters of the alphabet, and subsequently words after another person. The result has been most satisfactory, and affords the highest encouragement to those who labour under this peculiar kind of deprivation; there being now very little doubt, if his health is spared, and his perseverance continues, that he will obtain a perfect recovery of speech."

There are some observations of M. Broca that show that, although there is no appreciable difference of weight between the two hemispheres, the left frontal lobe is perceptibly heavier than the right, and Gratiolet, an eminent physiologist, says that, in the development of the brain the frontal convolutions of the left hemisphere are in advance of those of the right, and from this cause it is that we are right-handed. M. Broca, however, we think, draws an unjustifiable inference from this, that because we use the left hemisphere for mechanical acts, therefore we use it for speech. We are not limited to the use of the right hand, and Gratiolet's observation, if it should be confirmed by others, is rather opposed to than in favour of Broca's theory, as it simply gives a reason for the greater use made of the right side by a majority of people, and rather tends to confirm the general impression that the brain is a dual organ.

Comparative anatomy confirms, to some extent, the theory that the cerebral centre for speech is seated in the frontal lobes. The cerebral convolutions in man are, as is well known, much more developed than in animals; and in apes which approach him in intelligence without having the faculty of speech, there is an extremely imperfect development of the third frontal convolution, coinciding with a greater development of some of the other frontal convolutions than is found in animals generally. In the microcephali, who cannot speak, the third frontal convolution is also found imperfectly developed.

Appended to the essay is an engraving of the convex surface of the left hemisphere, showing the disposition and arrangement of the cerebral convolutions, taken from a cast sent to the author by Prof. Broca, which adds very much to the value of this admirable monograph. J. H. H.

ART. XXIII.—*Lectures on Some Subjects connected with Practical Pathology and Surgery.* By HENRY LEE, F.R.C.S., etc. In two volumes. Third edition. 8vo. pp. xviii., 309, and xx., 386. London: John Churchill & Sons, 1870.

THESE handsome volumes embrace new and improved editions of three separate works, viz: "Diseases of the Veins" (Jacksonian prize essay for 1849), "Affections of the Rectum," and "Lectures on Syphilis," together with several detached papers and lectures which the author has at various times contributed to the *Medico-Chirurgical Transactions*, *St. George's Hospital Reports*, etc. The "Diseases of the Veins" and "Affections of the Rectum," as they appeared together in their second edition, were noticed in the number of this Journal for July, 1866, p. 217, and we can fully endorse the favourable opinion there expressed as equally applicable to them in their present new and enlarged shape.

Mr. Lee's first volume consists of nineteen lectures, which treat successively of purulent infection or suppurative fever, phlebitis and its treatment, varicose veins and varicocele with their treatment, the repair of arteries and veins after injury, mortification and other affections secondary to disease of the arteries, various diseases of the rectum, hæmorrhoidal tumours, polypi of the rectum and excrescences and fistula of the anus, strictures of the rectum, obstruction of the bowels as connected with the rectum, affections of the sphincter ani, malignant diseases of the rectum, restorative operations connected with the rectum, long-continued pain in bone, and excision of joints. The second volume contains forty-two lectures, of which thirty-seven are devoted to syphilis, four to gonorrhœa, and one to albuminuria as a consequence of surgical diseases. The last lecture is one of much interest, and refers to several cases in which albumen and the colouring matter of the blood appeared in the urine, without the existence of disease either in the kidneys or in any other part of the urinary apparatus. All of such cases which Mr. Lee has observed "have been instances in which there was evidence, more or less distinct, of coagula having formed in some part of the vascular system. These coagula," he continues, "have been disintegrated and removed. The colouring matter of the blood has disappeared with the other portions of the coagula; and when we find this same colouring matter reappearing in a disintegrated form in the secretion of the kidneys, we are justified, I think, in concluding that the matter so eliminated formed part of the coagula which had been disintegrated, and removed in the course of the circulation."

Mr. Lee's views upon the subject of phlebitis, and its connection with pyæmia, are so well known that it will not be necessary for us to enter upon an extended examination of the portion of his work devoted to these topics; and the same may be said with regard to the lectures upon varicose veins and varicocele, and upon rectal diseases. We may merely mention that our author continues to employ for internal piles the strong nitric acid, or the clamp and actual cautery, in preference to other modes of treatment. We are disposed to regret that, in speaking of the treatment of imperforate rectum, no mention whatever is made of Littre's[1] operation, which many surgeons, notably the author's own colleague Mr. Holmes, deem far superior to that of Amussat, in dealing with this painful affection. Mr. Lee's views upon syphilis and gonorrhœa are familiar to American surgeons, from the fact that the essays upon those subjects in Holmes' well-known *System of Surgery* are from his pen. We hail with satisfaction our author's acknowledgment in the present volume, that having been formerly, as he tells us his critics called him, a dualist in all but the name, he is now forced to "advance . . . with the logic of facts," and being "compelled to follow the path these indicate to . . . their logical conclusion," proclaims his belief "that syphilis in its cause, no less than in its character, stands separate and apart from all other diseases, and that the local, soft, suppurating, contagious sore is not the product of the same virus as that which gives rise to constitutional syphilis." This testimony, we need scarcely say, from one who has done so much original work in the field of syphilitic pathology as has Mr. Lee, is of the very highest value. Thus one by one, we may safely prophesy, those who, like our author, advance with the logic of facts, will leave the ranks of the unitists, till, at no distant day, the notion that all venereal sores are essentially identical will seem as antiquated and untenable as does now the view of Hunter, that syphilis and gonorrhœa were themselves the effect of one and the same cause.

Mr. Lee, in common with a very large majority of practical surgeons, employs mercury in the treatment of syphilis, and justly calls it the "one medicine alone, . . . which through good report and evil report, in spite of the strongest prejudices of some against its use, and the no less adverse influence of others who have employed it to an unjustifiable extent, has maintained its general reputation." The method of employing mercury which our author prefers is by fumigation, and this he resorts to even in the presence of primary symptoms. It is probably upon the whole safer to employ constitutional

[1] See Holmes' Surgical Treatment of Children, 2d edit., page 176 *et seq.*

treatment during the first stage of syphilis, though we have never been able entirely to convince ourselves that the evolution of "secondaries" could be prevented by mercury, the evidence upon this point being, of course, mainly of a negative character. The plan which we prefer is the internal use of the proto-iodide, which, if well guarded with opium, entails no disagreeable consequences, and has the advantage of permitting greater concealment than the employment of the apparatus necessary for fumigation.

The following *conclusions*, at which our author arrives, after carefully investigating the subject of "syphilization," will be read with interest: our readers will observe that Mr. Lee is disposed to attribute any efficacy which this mode of treatment possesses to its depurative action, thus agreeing with the views of our fellow-countryman Prof. Bumstead, as expressed in the number of this Journal for July, 1870. "We may, I think," says Mr. Lee, "conclude—

"1st. That no evidence has hitherto been adduced satisfactory to the profession, that syphilitic virus can be successfully inoculated upon a patient who is at the time the subject of constitutional syphilis.

"2d. That occasionally from the surface of an indurated sore, matter may be taken which, in a subject of constitutional syphilis, may be made to produce a number of local ulcerations having some of the characters of the soft chancre.

"3d. That during the continued irritation and depuration produced by such ulcerations the manifestation of secondary syphilis will disappear.

"4th. That the time required for the treatment of syphilis in this way is so long, and the inconveniences attending it are so great, that it is not at all likely to be generally adopted in practice."

In taking leave of Mr. Lee's handsome volumes, we cannot but congratulate their author upon the noble record which they furnish of excellent and useful surgical work: we sincerely trust that, in future editions of these "Lectures," still other "subjects connected with practical pathology and surgery" may be introduced, and handled with all that skill and care which Mr. Lee so well knows how to bestow.

J. A., JR.

ART. XXIV.—*Lectures on Surgical Pathology delivered at the Royal College of Surgeons of England*, by JAMES PAGET, F. R. S., D. C. L. Oxon., Sergeant-Surgeon Extraordinary to her Majesty the Queen, etc. etc. Third Edition, revised and edited by William Turner, M. B. Lond., Professor of Anatomy in the University of Edinburgh. 8vo. pp. xvi., 850. London: Longmans, Green & Co., 1870.

A NEW and revised edition of Mr. Paget's classical *Lectures on Surgical Pathology* needs no introduction to our readers. Commendation of it would be as superfluous as criticism would be out of place. Suffice it to say that almost every page bears evidence that the present edition has been, as the author mentions in his preface, "carefully revised," from a clinical point of view by himself, and from the pathological, by his only less distinguished *editor*, Professor Turner. The latest observations of pathologists in all parts of the world have received due attention, and as a consequence the lectures in their present shape are not only, as Mr. Paget modestly hopes they may be considered, "better than they were," but probably the very best to which the student of pathology can resort. The introduction and harmonizing of new facts and deductions with previously entertained and sometimes more or less contradictory doctrines, is always a difficult task, and necessarily involves some of the risks which we are told attends the placing of new wine in old bottles; this difficult feat Mr. Paget and Prof. Turner have accomplished with a degree of skill and success which commands our warmest admiration. More than this, they have had the candor and good sense to change their views whenever it seemed necessary to do so, and even to abandon doctrines which were known all the world over as "Paget's," when discordant observations came with

sufficient confirmation to entitle them to be accepted as facts. As an illustration we may refer to the subject of inflammatory lymph. In the previous edition of the lectures, the lymph-corpuscle was said to "form and float free in the liquid part" of inflammatory lymph, which it was declared "is, probably always, at its first exudation a pellucid liquid, which passes through the blood-vessels, especially the capillaries of the inflamed part." In the present volume, on the other hand, we are honestly told that "pathologists generally have renounced the opinion at one time entertained that lymph or pus-corpuscles arise by molecular aggregation in a coagulated exudation," and the views upon this subject of Cohnheim, as well as those of Virchow, receive due attention.

On other points, as for instance the absence of inflammatory action in the *immediate union* of incised wounds, the views formerly expressed are still maintained; and that they are so is, we may be sure, whether we agree with them or not, the result of no oversight but of careful and mature reflection.

Again, Mr. Paget retains the clinical classification of tumours adopted in his previous editions, and his reasons for this cause are so well put, and, we may add, are so satisfactory, that we transcribe them to our pages: "The principal division of tumours," he says, "according to their physiological rather than their anatomical characters, has not been retained without a careful reconsideration of the whole matter, and a just regard to the opinions of those who hold that such a foundation of classification cannot be stable. It is believed that any one who, with equally large opportunities for both methods of study, will examine with equal care, the manners of life, and the structures after death of large numbers of tumours, will find not less constancy in the one than in the other. In a very large majority of cases certain structures coincide with certain manners of life; and for all these the clinical foundations for classification (if it may be so called) would coincide with the anatomical. In a few cases there would be no such coincidence; in a few classification on either foundation is very difficult; in still fewer it may be at present impossible. But for all cases, so long as the anatomical foundations for classification are not nearly perfect, the utility of a clinical division and nomenclature of the great groups of tumours must justify the retention of names which, by custom and contrasted meanings, tell the facts which are in daily practice, the most important to be known."

While however the old classification is thus retained, the labours of those who have adopted a different system are by no means ignored, as the frequent foot-notes and references sufficiently testify. We would refer particularly to the note on pages 544 and 545, which contains in a very few sentences a succinct but clear account of the group of tumours which are classed together by Virchow as sarcomata.

We regret the omission from the new edition of Mr. Paget's work of the 36th lecture, which in the former issues was devoted to the pathology of *Tubercle*. A portion of it only is embraced in lecture 28th (under the heading of lymphoid tumours), but the greater part is entirely left out. This is, we think, to be particularly deplored, because the whole subject of the pathology of scrofula and tubercle is at present in such a confused state, that we should be extremely glad to have it illustrated with that clear light which Mr. Paget is so well able to throw upon it.

This large book is handsomely printed, and the illustrations (which are very well executed) are somewhat more numerous than in previous editions.

J. A., JR.

ART. XXV.—*On Hernial and Other Tumours of the Groin and its Neighbourhood; with Practical Remarks on the Radical Cure of Ruptures.* By CARSTEN HOLTHOUSE, F.R.C.S., etc. 8vo. pp. xii., 167. London: John Churchill & Sons, 1870.

THIS small work, the author tells us, had its origin in two clinical lectures delivered to the students of the Westminster Hospital in 1863. Their object

was to direct attention to the difficulties which often attend the diagnosis of hernial tumours, and to protest against the practice (which Mr. Holthouse assures us is too prevalent) of performing herniotomy in cases of temporarily irreducible, but not strangulated hernia. To illustrate the first point, a number of cases are given (many of them from the author's own notes, but others extracted from the Pathological Society's Transactions, or the published writings of Pott and others), in which were made grave mistakes in diagnosis, sometimes followed by fatal errors in treatment. These "are published," the author assures us, "in no depreciatory spirit, but purely from a conviction that a knowledge of" them "is the best antidote to their recurrence." This disclaimer is perhaps necessary; as, but for it, the reader (observing that almost none of the mistakes were made by Mr. Holthouse himself, but by his colleagues, or by other surgeons who preceded him, or were associated with him in the care of the unfortunate patients) might be involuntarily reminded of the fable of the lion and the painter.

With regard to the second point, we can scarcely believe that the custom of performing herniotomy without the existence of symptoms of strangulation, is so prevalent as our author seems to think; in this country, we are sure the mistake is more apt to be on the other side—more patients perishing for want of the operation, or from its being too long delayed, than from its too hasty employment; and if our English brethren are so recklessly fond of the knife as Mr. Holthouse would seem to imply, they are strangely misrepresented by those surgical writers (such as Erichsen and Birkett), whom we are in the habit of considering as fair representatives of British surgery.

The greater portion of Mr. Holthouse's book is taken up with a record of cases, which, though sufficiently interesting in themselves, are brought together in a rather desultory manner, and will not, we think, really instruct the student as much as any of the well-considered chapters on hernia which may be found in the text-books of the day. In one particular we think Mr. Holthouse's description eminently adapted to confuse the mind of the student; this is in retaining the term *congenital hernia*, for hernia into the vaginal process of the peritoneum or into its funicular portion, without any qualifying explanation to show that it is not the *hernia*, but the *anatomical condition* which allows its formation, that persists from the time of birth.

No such qualification being given, we have the rather startling assertion (page 10) that it is a mistake to associate the term congenital with infancy, and that, in one case, congenital hernia first made its appearance in a patient sixty-five years of age. The fact is that in these instances the hernia is not really congenital at all; as Erichsen puts it, "the tendency is congenital, but the disease is not." It would be better, we think, with Mr. Birkett, to reject the term altogether, and classify herniæ strictly by their anatomical relations.

Mr. Holthouse's last chapter is "on the radical cure of ruptures," nearly half of its space being occupied by a quoted description of Mr. John Wood's method of operating. Only one case is given in which our author himself has attempted the radical cure (by the introduction of a seton), and in that case the disease recurred after a year. No new arguments are advanced in favour of the radical mode of treatment, while one of the strongest arguments against it, viz., that it cannot remove the abnormal elongation of the mesentery,[1] which is at least very frequent in cases of hernia, and which inevitably tends to cause a recurrence of the disease in the same or another part, is not even alluded to.

It is possible that, as Mr. Holthouse says, the *dangers* of operations for the radical cure of hernia have been exaggerated; still we cannot see the consistency of forbidding (as on page 77) *herniotomy*, "unless the symptoms of strangulation are persistent as well as unequivocal," and subsequently recommending an operation, which is in itself probably equally serious, for a case where there are no urgent symptoms at all.

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[1] See Birkett, in Holmes's System of Surgery, vol. iv. p. 230.

As a literary effort we cannot commend Mr. Holthouse's production: "interrogating the contents of tumours" (page 7) is as much too grand, as "the sudden flop with which" a hernia "slips in at the last" (page 51) is too familiar.

J. A., JR.

ART. XXVI.—*On the Law which Regulates the Relative Magnitude of the Areas of the Four Orifices of the Heart.* By HERBERT DAVIES, M. D., F. R. C. P., Senior Physician to, and Lecturer upon the Theory and Practice of Medicine at, the London Hospital, &c. 8vo. pp. 20. From the Proceedings of the Royal Society, No. 118, 1870.

DR. DAVIES has certainly developed some interesting facts, whether the reasoning upon which he bases the necessity of their existence be legitimate or not.

Using the measurements of Drs. Peacock and Reid, he shows that there is a striking approximation between the ratio of the area of the tricuspid to the area of the mitral orifice and that of the pulmonic to the aortic.

Thus, Dr. Peacock's measurements give—

$$\frac{\text{Area of Tricuspid}}{\text{Area of Mitral}} = 1.4, \text{ nearly.}$$

$$\frac{\text{Area of Pulmonic}}{\text{Area of Aortic}} = 1.3, \text{ nearly.}$$

Showing a difference of but .1

The approximation with Dr. Reid's measurements is still more marked. Thus—

	Males.	Females.
$\frac{\text{Area of Tricuspid}}{\text{Area of Mitral}}$ =	1.31	1.36
$\frac{\text{Area of Pulmonic}}{\text{Area of Aortic}}$ =	1.26	1.40
	0.05	0.04

Dr. Davies has also personally made a number of measurements in lower animals, and shows in the horse a difference of but .002; in the donkey, .04; ox, .01; calf, .04; sheep, .06 and .064; pig, .003 and .02; dog, .04 and .09.

This is indeed striking, and although we can hardly agree with Dr. Davies that the ratios are mathematically exact, or so nearly so that any differences must be due to necessary differences in measurements, we deem them sufficiently so to permit the laying down of a *physiological* law with regard to them.

With a view of confirming these results, Dr. Davies measured the pulmonic, mitral, and aortic orifices of a perfectly healthy heart, and from these data and the equations resulting from the above law, calculated the area of the tricuspid. Thus—

$$\frac{\text{Area of tricuspid}}{\text{Area of mitral}} = \frac{\text{Area of pulmonic.}}{\text{Area of aortic.}}$$

Or, by substituting known data—

$$\text{Area tricuspid} = 1.405 \times \frac{1.003}{.765} = 1.972.$$

He then measured the area of the tricuspid, and there resulted a difference between the measured and calculated results of but .098 inch.

So with the other orifices. And it is plain, also, how in this manner may be computed the difference between the measurement of a diseased orifice and its proper area, since the latter can be calculated from the equation. Such an instance is also given.

Again, on the supposition of the generally admitted data that—1st, the two ventricles are in health perfectly synchronous in their diastole and systole; 2d,

that equal volumes of blood enter the ventricles during their diastole and are expelled during the systole; and 3d, that the ventricles are of equal capacity: since the amount of resistance to be overcome by the left ventricle is greater than that to be overcome by the right, it follows that "the perfect synchronism of the ventricular contractions can only be obtained by an exact graduation of the areas of the orifices of the aortic and pulmonary artery to the muscular forces impressed upon the contents of the two ventricles in systole, and consequently to the velocities of the streams issuing from those chambers. The area of the aortic must be therefore smaller than the area of the pulmonic, and in such proportion that the normal average contents (say three ounces) of the left ventricle shall occupy exactly the same time in passing through the aortic as is required by the three ounces of the right ventricle in passing through the pulmonic opening." The velocities of the streams must therefore be inversely as the areas of the orifices, and we have the following equations:—

$$\frac{\text{Velocity through aortic opening}}{\text{Velocity through pulmonic opening}} = \frac{\text{Area of pulmonic opening.}}{\text{Area of aortic opening.}}$$

Or, by substitution, velocity through aortic opening $= \frac{1 \text{ sq. inch}}{.75 \text{ sq. in.}} \times$ velocity through pulmonic opening $= 1\frac{1}{3}$ times the velocity through pulmonic opening; or, in other words, the velocities of the currents through the aortic and pulmonary orifices are in the ratio of 4 to 3.

By similar reasoning, the velocity through the tricuspid is shown to be $\frac{5}{7}$ velocity through mitral, or the velocities of the currents of blood in diastole through the tricuspid and mitral orifices are in the ratio of 5 to 7.

If, now, we concede that the ventricular contraction occupies $\frac{1}{3}$ the time between two pulses, it will occupy $\frac{1}{3}$ of $\frac{1}{70}$, or $2\frac{1}{10}$; we have here data whence we calculate from the above equations the velocity of the blood through the

Aortic orifice to be	23.1	in.	per	second,	or	2310	yds.	or	1.3	miles	per	hour.
Pulmonic	"	"	17.3	"	"	"	"	1725	"	"	1	mile	"	"
Tricuspid	"	"	5	"	"	"	"	500	"	"	.28	"	"	"
Mitral	"	"	7	"	"	"	"	700	"	"	.4	"	"	"

In confirmation of the results that the velocities of the synchronous tricuspid and mitral currents are unequal, and that the latter presents a stronger dilating power than the former, Dr. Davies presents also the following reasoning:—

The two ventricles being of unequal thickness, and containing consequently unequal quantities and weights of muscular fibre, will necessarily require currents of blood of unequal momenta to overcome their respective *inertia*, fill their chambers, and complete their dilatation in exactly equal and the same times. That is, the momentum or the volume multiplied by the velocity of the mitral is greater than the momentum or volume multiplied by the velocity of the tricuspid current; but the volume in each is the same; hence, eliminating volume from each, we have the proposition to be demonstrated, that the velocity through the mitral is greater.

This novel method and these interesting results of Dr. Davies are decided contributions to our knowledge of the subject, and quite worthy the careful consideration of physiologists and pathologists, to whom we cordially recommend them. It would be a comparatively easy matter for those connected with large hospitals to repeat and extend these experiments, with a view to their confirmation or refutation.

After a careful perusal of Dr. Davies' essay, we cannot agree with a late reviewer in the *Journal of Anatomy and Physiology* that Dr. D. maintains—1. That the energy due to the contraction of the heart, by which resistance to the circulation is to be overcome, resides at the arterial orifices, in the form of *vis viva*. 2. That the velocity, and consequently the vis viva, of the blood depends upon the contractile force of the heart and the area of the arterial openings only. We believe this is more than he claims. His observations relate merely to the *relation between the size of the orifices*, and to the *average velocity* of the blood through those orifices, and he deals with the *vis viva* only in attempting, as it were, to confirm this latter. By *vis viva* is meant, as explained by Dr. Davies, the mass of blood in motion multiplied by the *square*

of its velocity, differing in this latter respect from momentum, which is the mass of blood multiplied by the velocity. Momentum is substituted by Dr. D. for vis viva, since it does not affect the reasoning. It is true that, in referring to the forces which resist and at the same time aid the propulsion of the blood through the vessels, he omits, as by oversight, the force of the elastic coat of the vessels, but that does not affect the *fact* of the relations of the orifices, nor of the *average* rate through and at these orifices. J. T.

ART. XXVII.—*On the Causes, Prevention, and Treatment of Infantile Diseases; showing by what Means the present Mortality may be greatly reduced.* By SELBY NORTON, M. D., Fell. Obstet. Soc., Lond. 12mo. pp. 75. London: John Churchill & Sons, 1870.

A BOOK which would show us the means by which the present disproportionately large infant mortality could be reduced, would, we are sure, be warmly welcomed by the profession, and it is, therefore, with some feeling of disappointment that we express the opinion that the *means* which Dr. Norton points out are neither so novel nor so likely to be efficacious as he seems to think. The substitution of cow's milk properly diluted, for the various kinds of "improved food for infants" is expected to accomplish this most desirable result. We are, of course, perfectly well aware of the fearful amount of ignorance which prevails among mothers of all classes who are unable to nurse their infants, as to the proper kind of food to be given to them, but we cannot agree with the author in thinking that a similar want of knowledge is prevalent among physicians. The authors of most, if not all the standard works on diseases of children, call attention to the fact that farinaceous preparations, in consequence of the absence of teeth and the imperfect development of the salivary glands, can never be perfectly assimilated by infants during the first months of their existence, but must always be a cause of irritation to the stomach and bowels. Dr. Norton, however, brings forward this fact as one, if not entirely new, at least not generally known, and seems to attach so much importance to it, that we are forced to the conclusion that he is not quite as familiar with medical literature, even that of his own country, as he should be. Convinced, as we are, of the correctness of his views of the superiority of milk as an article of diet over the different preparations of starch, we cannot indorse his assertion that proper care being observed there will be no greater mortality among children so fed than among those brought up at the breast. The statement is, we think, scarcely true of England; it certainly is not of this country. Even with the greatest care that can be exercised an acid reaction will frequently, during summer, manifest itself as the consequence of the exposure of milk for a short time to the heat. This it is which renders children fed upon it, even in the country, liable to indigestions. How much greater this source of irritation must be in our large cities, and how impossible it will be to overcome it entirely will, we think, be evident to all.

Disorders of the digestive apparatus are not the only results of the administration of improper food, by which Dr. Norton means and understands starch; but it may by reflex action excite irritation of distant organs, as the lungs, larynx, and brain, manifesting its perturbating influence in the production of bronchitis, pneumonia, laryngismus stridulus, or convulsions. Bronchitis, he is disposed to think, very frequently originates from an error of diet in the infant, as it may also in the very old, and he regards its action as beneficial, for he says it gives rise to an increased secretion of mucus, "which after being coughed up in the throat is passed down into the stomach; the mucus completely coats every particle of the undigested something and floats it safely through the pylorus and through the whole length of the bowels." There may or may not be such a power as the vis medicatrix naturæ present in disease, but we submit that its action can scarcely be regarded as beneficial, when, as in this instance,

it protects from one inflammation only by exciting another. Our author speaks of laryngismus stridulus and false croup as the same disease, whereas they frequently have only one symptom in common, the spasm of the glottis.

Dentition, it is thought, has received an undue prominence, being a process only attended with difficulty when the digestive organs are disordered, and being under such circumstances rather a consequence than the cause of the general condition. No one will deny the truth of this, and yet it would be impossible to free even the professional mind of the conviction, that the cutting of teeth is at least the exciting cause of many of the accidents which frequently attend it.

The term infant has in this book a limited signification, and includes only children who have not yet completed their first year; as it is at this time of life that the mortality is the greatest, and later a different set of diseases is observed. This is of course true, but as Dr. Norton regards all diseases to which the infant is liable, as directly dependent upon the irritation caused by starchy food, we are surprised that he had not extended the period of infancy, if not to the end of the first dentition, at least to the time of the complete eruption of the four first molars, at which time the child is liable to grind its food, and requires, and can digest other food than milk.

Perhaps the hope expressed by the author in the preface, "that he may have the good fortune to be read generally as well as by the profession," will account for some of the faults which we have indicated, but it will hardly, we think, be recognized as a sufficient excuse for them. J. H. H.

ART. XXVIII.—*Medical Diagnosis, with special reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Disease.* By J. M. DA COSTA, M. D., Lecturer on Clinical Medicine, and Physician to the Pennsylvania Hospital, etc. etc. Illustrated with engravings on wood. Third edition, revised. 8vo. pp. 844. Philadelphia: J. B. Lippincott & Co., 1870.

THE first edition of this work appeared in 1864. It was reviewed elaborately in this Journal shortly after its publication.[1] We agree with the able writer of that review in saying at the time of the publication of this work that "few books have been more wanted than thorough, correct, and available manuals of medical diagnosis." The success of Dr. Da Costa's work has confirmed the correctness of this statement; and it has also confirmed another statement by the reviewer, namely, that the work "is not only a good, but at present, the best manual of Medical Diagnosis." When the size of the volume is considered, together with the fact that, in its practical object it is limited to the discrimination of diseases, the success, as shown by the call for a third edition within the space of six years, is remarkable. Bearing in mind the desirableness, to the great majority of physicians, that a large book on practical medicine should embrace, in addition to diagnosis, the etiology and treatment of diseases, the success of Dr. Da Costa's work furnishes convincing proof of its excellence; and, at the same time, this success is evidence of the value of works devoted specially to the subject of diagnosis. That a thorough, correct, and available treatise on this subject is a desideratum, no one, as we think, can doubt who appreciates fully the difficulties often incident to the discrimination of diseases, and (if the term may be allowed) the momentous importance to the practitioner of diagnostic skill with reference to his individual experience in therapeutics, and the judicious treatment of cases of disease.

The plan which Dr. Da Costa adopts of taking, as a point of departure, symptoms, instead of morbid states, or, in other words, diseases, seems to us decidedly the better of the two. In works on the practice of medicine, as a

[1] Vide Am. Journ. of the Med. Sciences, No. for Oct. 1864, page 423.

matter of course diagnosis enters into the consideration of individual diseases. The study of particular symptoms in their different and numerous diagnostic relations is complemental to the study of diseases with reference to their distinctive characters. It is important for the student that the subject of diagnosis be presented in both these aspects, to wit, *first*, taking symptoms as the starting point, and, *second*, as incidental to the consideration of diseases. Dr. Da Costa's work would have been less useful if he had adopted the plan of taking diseases as his point of departure. To some extent, however, the latter plan was necessary; for example, in treating of the diagnosis of the essential fevers.

A very effective method of presenting the differential points of the diagnosis of different diseases having features more or less in common, is to arrange the distinctive characters of each in parallel columns. This method Dr. Da Costa has to some extent adopted. If we were to offer a critical remark here, it would be to express a wish that this method had been more largely pursued.

An analytical review of Dr. Da Costa's work is not now needed. The improvement in the third edition alone calls for notice. The size of the volume, in this edition is increased by about one hundred and fifty pages. An examination, with reference to the revision and the additions, shows that the author has studied carefully the medical literature of the last six years in its bearing on his subject. He has also added to the fruits of his own clinical experience. The work is fully up to the present time, as regards the application of recent means of diagnostic investigation by means of the thermometer, the ophthalmoscope, the laryngoscope, and the sphygmograph. In fact, it is in no respect behindhand, but it represents fully our present knowledge of the subject of which it treats.

In commending this work, we do not lay ourselves open to the suspicion of a friendly bias, for our commendation is in accordance with the verdict of the profession. But praising it, as we do heartily and conscientiously, we would not have it inferred that, were we to undertake an analysis of it, we should find nothing to criticize. Can a reviewer ever say of any book, however excellent it may be, that it affords no scope for criticism? In looking through the volume we have noted several things which seem to us to be open to critical remarks. Were we writing a review, we should not be reluctant to play the part of the critic, believing that the better the book, the more it is deserving of critical inquiry. But the things which we have noted are of minor importance, and our criticism would simply involve differences of opinion with regard to which the author's judgment is perhaps entitled to more weight than ours. We conclude, then, by saying, as did the reviewer of the first edition of the work, that it is at present the best manual of medical diagnosis. A. F.

ART. XXIX.—*Transactions of American State Medical Societies.*

1. *Transactions of the South Carolina Medical Association. Annual Session*, 1870. (*Second Meeting since Reorganization.*) 8vo. pp. 56.
2. *Transactions of the Indiana State Medical Society*, 1870. 8vo. pp. 165.
3. *Transactions of the Minnesota State Medical Society. Session of* 1870. 8vo. pp. 46.

1. THE Annual Session for 1870 of the *State Medical Association of South Carolina* was held in Columbia, March 9th and 10th.

The Session was opened by a very calm and neat address by the President, Dr. A. N. TALLEY. Its leading theme is "The Hindrances to the Advancement of Medical Knowledge," with a brief reference to the means by which these obstacles are finally to be surmounted.

The first scientific paper, which is on "Liquid Glass (Silicate of Potash) as a Surgical Dressing form Imovable Apparatus," by Dr. J. T. DARBY, with the next paper giving an account of a case of "Sarcomatous Fibroma of Upper

Jaw successfully Removed," by Dr. R. A. KINLOCK, and also the closing paper in the volume on "Hair as a Suture and Ligature," by J. T. DARBY, will be found fully noticed on a subsequent page (p. 510).

Dr. R. W. GIBBES presents a paper on "Intra-Uterine Injections," with the history of a case of secondary post-partum hemorrhage in which persulphate of iron was successfully employed. We doubt the propriety of all intrauterine injections, more especially of substances of an active or irritating nature. Such injections are liable to produce serious mischief.

Dr. S. BARUCH describes an "Improved Uterine Sponge-Tent Carrier." The instrument consists of a canula of silver, hard rubber, or tin, six and three-quarter inches long, and one-eighth of an inch in diameter, having at each end a shoulder three-eighths of an inch in diameter. A steel or iron stylet, seven and three-eighths inches long, passes through the canula, which it closely fits. The stylet is mounted at its lower end on a handle three inches long, and one-quarter of an inch in diameter, and projects above the canula at its upper end one-half to five-eighths of an inch. This projecting portion is flattened, and has a blunt point, to prevent rotation of the stylet within the tent, when any force is required to enter the cervix. The tent being mounted on the projecting point of the stylet, and the cervix-uteri exposed by a full-sized cylindrical speculum, the point of the tent affixed to the stylet is to be inserted into the os uteri, the canula being held between the thumb and forefinger of the left hand; the stylet is now to be rotated by the right hand, and the canula at the same time gently pressed upwards. When the tent is thus passed into the required position, the canula is to be firmly held, and the stylet withdrawn about an inch, when the tent will be disengaged by its impinging on the upper shoulder of the canula. The instrument being now withdrawn, leaves the tent firmly fixed within the cervix. The superior advantages, we will say, using the words of its inventor, of the instrument described, will be appreciated by any one on using it once or twice.

2. The Twentieth Annual Session of the *Indiana State Medical Society* was held at Indianapolis, May 17 and 18, 1870. Its volume of Transactions opens by the address of the President, Dr. S. SUTTON, the subject of which is "Man's Power over Nature, and Medicines as Means by which he aids and controls the Laws of Life." A subject of vast extent and importance, and very ably discussed, so far as the limits usually allotted to an address of the character of the one before us would permit.

The first paper is on the "Treatment of Puerperal Hemorrhage," by Dr. G. W. MEARS. It forms a short instructive monograph of the subject discussed, but contains nothing new. It gave rise to a somewhat "lengthy" discussion, during which some good practical remarks were elicited: a few however of the positions assumed by the speakers were of more doubtful authority.

A paper on the "Utility of Ergot in Facilitating Labour," is presented by Dr. E. MENDENHALL. As a general rule, the use of ergot as a means for the facilitation of labour, is attended with very considerable danger, if not to the mother, at least to the child, and yet a discreet use of the remedy in cases in which the passage of the head is arrested or rendered tardy, simply by inertia, or irregular action of the uterus, has, in numerous instances, brought about a speedy termination of the labour, without the slightest injury to mother or child, either immediate or remote: nevertheless, in the majority of even the simplest forms of tedious labour, a timely resort to the forceps will afford, upon the whole, a greater security for the safety of both mother and child, than will a resort to ergot.

The next paper is on "Physical Influence upon the Organization of Structures," by Dr. F. J. VORHIS. A not very clear metaphysical inquiry as to whether vital organization is a product of physical or psychological agencies. It appears to us to be somewhat out of place in occupying a prominent position in the printed transactions of a medical society.

The two papers which follow are both on "Reduction of the Hip-Joint Dislocation." The first, related by Dr. H. V. PASSAGE, occurred in a very powerful, muscular man. The dislocation upwards and backwards was of ten days' stand-

ing, and considerable force had been employed, in vain, to effect its reduction. The patient was put completely under the influence of chloroform. At the end of twenty-five minutes manual extension was commenced, and kept up for a short time, until the position of the trochanter major indicated that the head of the femur was just behind the acetabulum. One of the assistants was now directed to press with his hand downwards on the crest of the ilium, the leg was elevated to an erect position, and lifted upwards—the patient lying horizontally—the head of the femur now immediately entered the acetabulum, with the usual noise consequent upon the reduction of dislocations of that joint. The paper closes with a few pertinent remarks on the form of dislocation met with in this case.

The second paper, by Dr. R. E. HAUGHTON, comprises a somewhat elaborate exposition of the "principles of the flexion method" of reduction, which we are not disposed to discuss now.

Dr. G. V. WOOLEN presents a disertation on "Syphilis: its Pathology, and Treatment." The leading object of the doctor is to show the essential difference between the nature of the hard, indurated, or Hunterian chancre, and that of the soft, non-indurated, or suppurating sore, and the results of each respectively; with an examination into the bearing which a recognition of such essential differences between the two has, more especially upon the treatment of the disease. Dr. W. inclines to the doctrine that the two forms of venereal affection are the result of two poisons, essentially different in their nature and manifestations from beginning to end.

The paper, though interesting, is confessedly merely a recapitulation of some of the doctrines of the modern school of syphilography, as set forth by Bassereau in 1852, and since so ably defended by our countryman, Dr. Bumstead, by Henry Lee, of London, and by hosts of others less notable in medical literature.

Dr. WILSON HOBBS gives the history of a "Case of Disease of the Skull," removed by four operations. The case is one of considerable interest. The history of it cannot, however, be well condensed to a sufficient extent to enable it to be presented in an intelligible form within our necessarily restricted limits. The wood-cut illustrations are to a certain extent necessary to a proper understanding of the extent of the disease, and of the operation in its several stages.

Next we have a short paper on "Purulent Aural Catarrh," by Dr. C. E. WRIGHT. The term purulent *catarrh* is objectionable, when applied to the chronic inflammations of the mucous membrane of the middle ear, attended with purulent discharge, inasmuch as the term is derived from an old and repudiated pathology. The affection indicated is one of frequent occurrence as a sequela of scarlatina, smallpox, measles, diphtheria, typhus and typhoid fevers; in children of a scrofulous habit, it is often the effect of cold. When overlooked or mismanaged in its first stage, it is liable to lead to very serious results. The paper of Dr. W. furnishes a very good outline of the pathology and therapeutics of the disease as taught by modern aurists, but we do not find that it contains anything new.

The remaining papers of the volume are an apology from the committee appointed to report on the pathognomonic signs of nephritis. Through Dr. J. A. COMINGOR, the committee present no report, being acquainted with nothing in reference to the subject that is not contained in the ordinary textbooks on diseases of the kidneys.

The "Report on the Board of Public Charities," by Dr. J. R. WEIST, has chiefly a local interest; while the paper on the "Medical Rank in the United States Navy," by Dr. V. KERSEY, merely reiterates the sentiments that have been uttered by every medical organization throughout the entire Union before which the question has come up for discussion.

3. The First Annual Meeting of the *Minnesota State Medical Society*, since its organization in 1869, was held at St. Paul, February 1, 1870. The opening "Address by the President," Dr. S. WILLEY, contains much useful advice, especially in respect to a few leading subjects, in the determination to carry out which, either individually or by organized efforts, the best interests of every

member of the profession will be best secured, and the good, not merely of a remote isolated neighbourhood promoted, but that of the entire family of man, not at the present day only, but for all time to come.

We find from the minutes of this annual session that Dr. RICHARDSON, from a committee appointed at the June meeting to examine into the "Origin, Cause, and Treatment of Typhoid Fever," submitted a report; that Dr. MATTOCKS read, on behalf of Dr. F. H. MILLIGAN, the history of an "Interesting Case of Intra-uterine Hydrocephalus, complicated with Spina Bifida;" that Dr. A. B. STUART read an interesting account of the "Extraction of a Fibro-Cartilaginous Tumour from the Knee-Joint," the tumour, attached to the anterior crucial ligament, was removed by direct incision, and the patient recovered with perfect use of the joint; Dr. BLOOD also read a paper stating the reasons why he preferred amputation at the knee-joint to amputation at the lower third of the thigh; Dr. HEWITT likewise read, by previous appointment, an essay upon the "Relations which the Profession sustains to the Public, and the Duties which these Relations Impose;" notwithstanding, with the exception of one, these reports and papers were referred to a "committee on publication," they have not been inserted in the volume of "Transactions" before us.

Prizes of fifty dollars each were awarded to two essays, one on "Epidemics and Endemics of Minnesota," and the other on "Cerebro-Spinal Meningitis." They were both, it was found, by the same author, Dr. W. W. SWENEY, who modestly declined to receive the two prizes awarded, but desired that the award of one hundred dollars, be placed in the hands of the Executive Committee, as a "Prize Fund," for the ensuing year. D. F. C.

ART. XXX.—*Recent Surgical Pamphlets.*

1. *Sarcomatous Fibroma of Upper Jaw (Epulis?) successfully operated upon.* By R. A. KINLOCH, M. D., Professor of Surgery in the Medical College of the State of South Carolina, Charleston, S. C. Read before the South Carolina Medical Association, at the Annual Session, 1870. 8vo. pp. 7. (With three illustrations.)
2. *Liquid Glass (Silicate of Potash) as a Surgical Dressing for Immovable Apparatus, and Hair as a Suture and Ligature.* By J. T. DARBY, M. D., Professor of Anatomy and Surgery in the University of South Carolina, Columbia, S. C. Delivered before the South Carolina Medical Association, at the Annual Session, 1870. 8vo. pp. 24.
3. *On Amputation through the Knee-joint.* By WILLIAM MACCORMAC, M. A., M. D., M. R. I. A., President of the Ulster Medical Society, Surgeon to the Belfast General Hospital, etc. etc. (Reprinted from the *Dublin Quarterly Journal of Medical Science*, May, 1870.) 8vo. pp. 22. (With a photograph.)

1. PROF. KINLOCH'S case is one of very great interest. The patient, a negress aged 25, suffered from an enormous tumour which occupied the front and right side of the face, filling the buccal cavity, and projecting through the aperture of the lips, which it greatly distended. The lower teeth were completely hidden by the growth, which forced the chin down towards the sternum, while by its encroachments in other directions it had flattened and displaced the nose, and had almost closed the right eye. There was, moreover, a lachrymal fistula, and the patient, who had of course lost the power of chewing, could scarcely articulate, and breathed with difficulty; salivation existed, with much fetor. The projecting part of the tumour (in which were imbedded two teeth) was pink, shining, firm and elastic, without any ulceration; the semi-circumference of the growth, which had originated only eleven months previously, was no less than twelve and a quarter inches.

The tumour was removed, together with the right upper jaw, by two incisions, one running through the centre of the nose and lip, and the other passing from

the zygoma to the angle of the mouth. No ligatures were required, and the patient made a rapid recovery, the greater part of the wound healing by adhesion. A slight plastic operation subsequently removed a little deformity at the angle of the mouth, and the photograph, taken two and a half months after the removal of the tumour, shows what must certainly be considered a most admirable result. The tumour, which weighed nearly two pounds, exhibited under the microscope a fibrous stroma interspersed with numerous small circular nucleated cells.

2. In the first part of Prof. Darby's interesting paper he gives an account of six cases in which he has employed the silicate of potassa, or soluble glass, as a substitute for starch or other material in the application of the immovable bandage, or, as the French more accurately call it, the "*bandage amovo-immobile.*" Two cases were of fractured thigh, one of separation of the epicondyle of the humerus, one of ununited fracture of the leg, one of hemorrhagic ulcer, and one of sprained wrist, bent radius, and dislocation of the ulna from its radio-carpal joint. The result in each case was satisfactory, and Prof. Darby declares that, after a fair trial, he is induced to place the silicate above either plaster, starch, glue, or dextrine, for general usefulness. The soluble glass is applied either with the hand or with a brush, three or more layers of bandage being used, according to the degree of firmness required. Similarly favourable testimony on behalf of this mode of dressing is adduced in an extract from a letter received by Prof. Darby from Dr. R. W. Gibbes.

In the second part of Prof. Darby's communication he details twenty cases of wound or operation in which he has employed *horsehair* as a suture or ligature. This material, which he began to use in 1868 (not knowing at that time that it had been previously employed by Mr. T. Smith, of St. Bartholomew's Hospital), seems to have proved in Prof. Darby's hands quite as unirritating as the metallic suture, while an obvious advantage was in many instances derived from its greater flexibility. For ligatures it was found abundantly strong, and much more readily tolerated by the tissues than the ordinary silk thread. Prof. Darby recommends that the hair should, before it is used, be washed in a weak solution of carbolic acid.

3. In this interesting paper, Dr. MacCormac, the well-known surgeon of the Belfast Hospital, narrates five cases of disarticulation at the knee, with one of Carden's operation (through the condyles of the femur). Four of the disarticulations recovered, the fifth and the case of Carden's operation proving fatal. Dr. MacCormac recommends the formation of two flaps, a long anterior and a shorter posterior flap, both cut from without inwards, the articular cartilages and patella being allowed to remain. The popliteal vein usually requires ligature, and care should be taken to avoid the use of tight or heavy dressings. In several cases short-cut "carbolized catgut ligatures" were used, and in one instance it is stated that no trace of them was seen after the operation, the ligatures having been covered with granulations and apparently absorbed. Dr. MacCormac refers to the writings of Smith, Markoe, and Brinton upon amputation at the knee-joint, and quotes the statistics published by the last-named surgeon in the number of this Journal for April, 1868 (p. 555), attributing them, however, by a slip of the pen, to Dr. Markoe, of New York. Dr. MacCormac's paper, which we doubt not will do much towards establishing knee-joint amputation as a standard operative procedure in Ireland, is preceded by a short historical sketch of the operation, and is adorned with a very well executed photograph.

J. A., Jr.

ART. XXXI.—*A Treatise on Intraocular Tumours; from Original Clinical Observations and Anatomical Investigations.* With one Chromo-Lithographic and fifteen Lithographic Plates. By H. KNAPP, M. D., late Prof. of Ophthalmology and Surgeon to the Ophthalmic Hospital, in Heidelberg. Translated by S. Cole, M. D., Chicago. 8vo. pp. 323. New York: William Wood & Co., 1869.

THE author in his preface gives the following reasons for the study of the subject of his treatise: 1st. "Because the diseases here spoken of are perfectly harmless and masked in their earliest stages, but on further growth become so horrible and destructive to the patient and to those about him, that they awaken of themselves the highest sympathy of the physician; and, 2d. Because I am convinced that intraocular tumours especially are destined to throw light upon many general questions of fundamental significance for the theories and therapeutics of tumours in general."

He states, that in the eye malignant diseases are generally discovered in their early stages, since any disturbance of the vision sends the patient promptly to his surgeon; but if the seat of lesion were elsewhere, as, for example, in the mammary gland of women, dangerous and even fatal progress may have been made in its development, when it is presented for the first time for medical treatment. Moreover, the diagnosis of these growths in their incipiency is rendered possible by the means for testing vision, and by the ophthalmoscope, by which the deepest recesses of the eye are opened to our inspection, and lessons in pathology are afforded which can be obtained by the examination of no other portion of the body.

Moreover, the operation of enucleation of the eyeball intact, containing a growth which experience has shown will if undisturbed produce death, if performed whilst the sclerotic is yet normal and before the germs have found their way into the tissues of the orbit, or the disease has extended along the optic nerve, enables the surgeon to apply the *experimentum crucis* to the procedure of operative interference, and to ascertain its value for the eradication of malignant disease; a method of treatment which has been brought into such serious doubt by the numerous failures which have been observed in operations undertaken for the ablation of such tumours situated in other tissues.

As a field for the observation of the pathological anatomy of such morbid growths, an examination of the very instructive and well-executed plates in Dr. Knapp's volume will convince one that the eye thus diseased is unsurpassed.

As the result of many years of observation at his clinics, the examination of the literature of the subject, and the collection and arrangement of appropriate cases coming under his own notice, Dr. Knapp divides ocular tumours into two classes only, viz., Glioma (encephaloid) of the Retina, and Sarcoma, either melanotic or unpigmented, of the Choroid, and arranges his book into two parts accordingly.

In this classification he follows the nomenclature of Virchow, based on the anatomical characters of the growths; and whilst by no means denying that true carcinoma may not occur in the eye, he states that he has not observed it, nor found any convincing evidence thereof in the histories of cases reported by others.

He next gives with great clearness the clinical histories and the results of seven cases of glioma, accompanied by excellent lithographic representations of the appearances presented to the unaided eye, as well as of those observed by the aid of the microscope.

Of his clinical histories seven illustrate glioma, and a very short *résumé* of them will give the reader an idea of their progress and terminations.

CASE 1.—A child eighteen weeks old, one eye entirely blind, the other able to follow a light, in whose right eye the parents had observed at first a yellow reflection, followed by enlargement and vascularity of the whole eye. This was enucleated and placed in Müller's fluid for future examination after hardening. This solution consists of potass. bichromat., two to three grammes; sodæ sulphat., one gramme; aquæ, one hundred grammes.

The other eye presented marked symptoms of the same disease, and even with the naked eye the lower portion of the fundus was seen to glisten with a yellor colour. The child recovered from the enucleation and was dismissed in six days. Two years passed, and no local return of the disease had occurred in the right orbit.

The other eye had progressed and was then disorganized. In six months more a large tumour had grown from the left orbit, and several large growths were observed on the cranium; death in a fortnight. No abstract can do justice to the account of the pathological changes found after death in the cranium and liver, nor can words give any idea of the appearances of the tumours of the orbit and of the diploe, both macroscopic and microscopic, as depicted by the author's well-executed illustrations.

CASE 2.—A child, age four years; for a year a yellow reflex had been observed behind the left pupil; four weeks since rapid growth of eye, with headache and vomiting, commenced. The case was recognized as glioma of retina, with cerebral complications. Enucleation was performed, from which the child recovered in ten days, to die, however, in four weeks in a comatose condition.

The lesions in the eye are well described and depicted, but an autopsy was refused.

CASE 3.—Is a description of the pathology of an eye with glioma, in the author's collection of specimens.

CASE 4.—Child two and a half years old. More than a year since a white reflex from the fundus was observed by the family physician, which was followed by enlargement of the eye, great congestion and a corneal ulcer. On examination, pronounced to be glioma. On enucleation, the optic nerve was found thickened, and it was drawn forward and severed as far within the orbit as possible. In two months a reddish medullary tumour was seen projecting from the orbit, and in four weeks more death took place. No autopsy.

CASE 5.—Child two years old; first seen October, 1862. At birth the father saw in left eye a bright reflection resembling that of a cat's eye; when examined, the eye was enlarged, the cornea barely to be recognized, and a soft extra-ocular tumour was found in the orbit. Extirpation of globe and tumour was performed. The other eye was found by the ophthalmoscope to contain a yellow mass in its fundus. In four weeks a fleshy tumour had sprung from the orbit from which the ball had been removed, and death took place in January, 1863.

CASE 6.—Left eye of a boy, two and a half years old, enucleated, which became diseased five months before; became red, opaque, and protruded; and was found on examination, after death, to present a pure glioma, with extension to the optic nerve, pia mater, cerebrum, cerebellum, and spinal cord.

CASE 7.—A boy, age two and a half years, whose right eye had apparently been destroyed by scarlatina, and from which a tumour the size of a walnut protruded, soft, vascular, and easily bleeding. It was pronounced glioma, and removed. Child dismissed in seven days after operation. In three months he presented himself, with a tumour in the orbit, and a second growth as large as a hen's egg, in the parotid region. The orbital tumour, in size equal to the egg of a goose, was extirpated, and found to be a pure glioma in structure. Child was dismissed in a few days, and his family informed of the probable speedy fatal termination of the disease.

General Description of Glioma of Retina.—In appearance this growth resembles soft, brain-like marrow, of a red-gray colour; and under the microscope, in the fresh state, it consists of round cells about the size of lymph corpuscles, each having a large nucleus and one or more nucleoli, or, perhaps, none at all. After having been placed in Müller's fluid, the cells resemble those of the granular layers of the hardened retina. They lie in an intercellular material, homogeneous when fresh, but granular and seen as a fibrous network with a binocular microscope and an objective magnifying from two hundred to three hundred diameters, after treatment with a hardening solution.

The morbid process is believed to be a proliferation of the retinal granular layers, which extends itself to other tissues, either by immediate contact or by dissemination of its germs, which become then self-generative. Thus an extension along the optic nerve to the brain or spinal cord, or a metastasis to

some internal organ, is the most frequent cause of death, even after the fibrous capsule of the eye has been invaded and the entire orbit occupied by large vascular, and ulcerating tumours.

In the first stage, glioma is recognized by examination by the oblique illumination, or by the ophthalmoscope, after the use of atropia, and by testing the field of vision. A yellow or white reflection from an elevated mass in the fundus may be observed, which by the precise methods now in use, and described at length by the author, can be measured in its thickness by the examination, by the ophthalmoscope, by the upright image, by ascertaining with what convex lens the details are clearly perceived, and in its other dimensions by a comparison with the optic disk. In this manner in his first case, a coloured lithograph of which is given, showing the appearances of the fundus, a portion of the diseased retina was seen with positive $\frac{1}{18}$, and the summit of a growth upon it could be yet distinguished through postive $\frac{1}{10}$, from which he infers that the retina was thicker in the first described portion by about 0.5 mm., and the apex of the growth 1 mm. advanced beyond its normal limit, and therefore thickened to this extent, and that the disease extended to 3 mm. in breadth and 4 mm. in length.

In the second stage, symptoms of irritation and inflammation appear, and the media lose their transparency; the tension is increased, and the whole eye is notably enlarged from the rapid growth of the tumour, and there is pain in the eye and its vicinity.

In the third stage, the pseudoplasm passes beyond the globe by extension through the optic nerve to the chiasm, when total blindness may ensue, or to the brain, when the usual symptoms of tumour in the nervous centres may be developed; or the cornea or sclerotic may be perforated, and a soft ulcerating growth may be rapidly developed, bleeding frequently and freely, and causing death by exhaustion where the cranium has not been invaded or other organs destroyed by metastasis to them of the malignant germs.

Nothing is known as to the causes, remote or immediate, of glioma, but it is essentially a disease of early childhood, and must, in some of the cases recorded, have been in existence at birth.

In the first stages, the disease may be mistaken for an unpigmented sarcoma of the choroid, from which it is to be distinguished principally by its true yellow metallic lustre.

In later stages, after vision has been entirely lost, and the media are less transparent, Dr. Knapp recommends for the examination the use of direct sunlight, which is best employed by the aid of a heliostat, so arranged as to throw the light into a dark chamber.

There are several morbid changes that may be mistaken for glioma, as for example, simple detachment of the retina, the presence of a cysticercus or suppurative choroiditis, etc., and for the differential diagnosis the reader is referred to Dr. Knapp's volume.

The prognosis is very unfavourable, and in well-established cases the results have been invariably of a fatal character, either from exhaustion or hemorrhage after perforation of the globe, or from extension to the encephalon and the development of cerebral glioma. Nevertheless, as has been lucidly described by Robin and Virchow, the proliferation of a given tissue is not so malignant a process as is the growth of true cancer, which consists of a stroma of connective tissue having epithelial-like cells in its areola. Furthermore, the dense capsule of the globe offers a formidable obstacle to the extension of a hyperplasia which arises in the granular elements of the retina. Evidence is also not wanting that retrogressive metamorphoses of a fatty or calcareous nature, may arrest the growth and convert it into a permanent and innocent atrophy.

As for treatment, the author says, should a unilateral glioma of the retina be recognized early, enucleation of the globe is indicated, with the division of the optic nerve as far back as possible.

For the second stage, with increased tension and marked inflammation, he recommends the extirpation of the eye together with the orbital contents, to remove entirely the germs that may have extended beyond the fibrous capsule.

Even the last stage, with perforation and exophthalmos, may be treated in

the same manner with some hope of averting a fatal result. In bilateral glioma, the study of case first teaches that both balls should be enucleated, since in the one which was removed the disease was arrested, no recurrence had appeared at the end of two and a half years, and death ensued from the development of the disease in the other eye. This branch of his subject is terminated by a statement of the medical treatment recommended by Sichel for procuring the atrophy of encephaloid growth of the eye, which consists of local and general bloodletting, mercury, and the most active of the alteratives; and he does not favour the opinion that malignant growths can be treated successfully in this heroic manner when the powers and nutrition of the body are already in a failing state.

Part Second is devoted to the discussion of Sarcoma of the Choroid, based upon the clinical histories of eight cases, with their pathological lesions, general and local, carefully described, and clearly depicted in numerous lithographic illustrations.

CASE 8.—A man aged 65, disease first observed eighteen months previously, and ascertained on careful inspection to be a morbid growth, grayish-black in colour, protruding into the anterior chamber, and detaching the peripheral margin of the iris. Enucleation was performed, and the eye externally found perfectly normal in appearance. On section three tumours were found covered with retina, and springing from the choroidal layer.

Nine months later the man died with all the symptoms of malignant disease of the liver, lungs, and stomach. No autopsy was made. No return of the disease had occurred in the orbit.

CASE 9.—Woman aged 62. For six months vision had been impaired, tension increased, and pain had been present in left eye, which, on examination, presented a morbid growth close behind its lens. Enucleation was performed with entire success, since no relapse, local or general, has occurred at the time of writing, three years after operation. On section a tumour was found springing from the ciliary region, covered with retina, and composed of sarcomatous tissue.

CASE 10.—Male, aged 73, vision of left eye impaired for five months, is found to present a morbid growth just behind the lens. The ball, with a tumour at its posterior pole, was enucleated and found to contain a sarcomatous growth. There was no local return, but in six months death occurred, and although no autopsy was made, the author believes that the lungs, liver, and kidney were, from the symptoms observed, the seats of metastatic sarcoma.

CASE 11.—A male aged 63 presented himself with a tumour which protruded from the lids, and had evidently caused a perforation of the nasal side of sclerotic, and now filled the orbit.

This growth with the orbital contents was removed, and on examination proved to be a melanotic glio-sarcoma. He recovered from the operation in ten days and was discharged, but when last heard from he was dying with a tumour of the orbit, and a growth in the abdomen.

CASE 12.—Age 44. This man presented a growth of a bluish-black colour, which was removed by extirpation of the ball and the orbital contents, and found to be a medullary melano-sarcoma. A relapse occurred in the orbit, and a tumour appeared there, which three months after the first operation was radically removed, and he enjoyed good health for two months. Four months later death occurred from metastasis to the lungs and liver, and a tumour the size of a hen's egg was found within the cranium after death.

CASE 13.—Mr. S., aged 52, suffered for three years; first, with impaired vision, and next with acute pain, which led to the enucleation of the globe. A tumour the size of a hazelnut was found within the ball, which proved on dissection to be a sarcoma, with spindle-shaped cells. The disease appears to have been totally eradicated by the operation, since no relapse nor metastasis has occurred, and two and three-quarter years have elapsed.

CASE 14.—J. N., aged 30. A globular tumour, yellow in colour, seen with $+\frac{1}{6}$, was detected in the fundus of right eye, with the ophthalmoscope, which, from the author's experience, was believed to be a choroid sarcoma, since

all tumours within the eye, not occurring in children, he holds to arise from the choroid.

The anterior chamber, iris, tension, and general appearance of the eye were normal; the field of vision was three-quarters of its proper extent; fingers could be counted at four or five feet, and there was no pain, yet enucleation was proposed and performed. A tumour of the size of a hazelnut was found, composed of white vascular sarcomatous tissue. No recurrence of the disease was observed. The man died in seven months of debility, and the author believes that from the circumscribed nature of the growth, and its radical extirpation, this case may be considered one of permanent cure.

CASE 15.—V. W., aged 6 years, was operated upon by enucleation of the bulb, for a growth which could be readily perceived just behind the lens, and which on examination proved to have its origin from the choroid. The wound healed quickly, and at a period of two and three-quarter years after, the boy enjoys excellent health.

Although in some cases there might be no macroscopical difference observed between glioma and sarcoma, yet with the microscope the sarcoma is seen to consist of a tough and more fibrillated intercellular substance, and of cells, round, elongated, or spindle-shaped, containing each a large well-defined nucleus, with one or more bright and well-marked nucleoli; when pigmented it exhibits in the cell contents granules of brownish-black colouring matter.

It is met with more frequently in the choroid proper, although the ciliary body appears to be a frequent point of development. Covered by the retina the tumour may encroach upon the vitreous space, and press forward the iris, lens, and cornea, giving rise to symptoms of increased ocular pressure, and glaucomatous inflammation; the ball becomes enlarged, and is perforated by the pseudoplasm which then vegetates in the orbital tissues; lobular masses may protrude from the opening between the lids, the conjunctiva gives way, and a freely ulcerating surface is presented to view.

Death by exhaustion from this local lesion is anticipated by metastasis to other organs, necessary to existence, as for example to the brain, lungs, liver, pleura, stomach, spleen, or kidneys, where after death morbid growths of a character similar to the choroidal sarcoma are found.

Of the etiology nothing is known further than that cases have been observed which had a traumatic origin.

As to prognosis, sarcoma terminates fatally sooner or later, since no case of spontaneous cure has been observed with precision, although in malignancy it is second to carcinoma, since it belongs to the class of homœoplastic tumours. Of the seven cases clinically reported, three have had no relapse, and may be regarded, "if we are inclined to optimism" as radical cures, whilst the other four died within a year from the date of operation, with evidences of generalized sarcoma.

Even this proportion is considered by the author as too favourable for our present knowledge upon this subject, but it affords proof that the operation is the more sure, and the cure more probable, the earlier the disease is diagnosticated and the ball extirpated.

Graefe says, however, that "he can remember no case in which after a very thorough extirpation of a tumour of this nature, the state of apparent cure had lasted more than four years."

The treatment advised by Dr. Knapp is the immediate enucleation of the ball whenever a diagnosis can be clearly made of a growth as yet intraocular. He advises that the optic nerve should be examined to ascertain the probable extension to it of the pseudoplasm, and where this is suspected he directs that the nerve should be drawn forward, and divided as deeply as possible in the orbit.

Even when glaucomatous inflammation is present, and the ball is distended, the operation may be successful, as in Case 13. Should secondary or local recurrences, be subsequently found, he advises the total extirpation of the contents of the orbit, with a view to spare the patient the horror to himself and those about him, of a disgusting lesion on his face. Where metastasis has

occurred the treatment can only be symptomatic, and need not be further discussed.

This production of Dr. Knapp is worthy of careful study, and reflects much credit upon him as a skilful clinical observer and accomplished pathologist. His views as to classification and nomenclature will meet with opposition, and time will decide whether glioma is a multiplication of the retinal granular layers, or a hyperplasia of the connective tissue. However unfavourable the results of these reported cases may appear, it should lead practical surgeons to use increased diligence in the early diagnosis of these malignant growths since it is only in their earliest stages that an operation for their removal can be performed with any prospect of a radical cure. W. T.

ART. XXXII.—*On the Etiology of Bright's Disease, with Remarks on the Prophylaxis.* By GOUVERNEUR M. SMITH, M. D., Physician to the New York Hospital, etc. 8vo. pp. 34. Transactions of the New York Academy of Medicine, 1869.

DR. SMITH has embodied in this paper, which was originally read before the New York Academy of Medicine, the statistics of three hundred and eight cases of Bright's Disease, of which histories are to be found in the medical records of the New York Hospital. These statistics will be of value to any one interested in the pathology of this disease, but it is especially in relation to its etiology and prophylaxis that the pamphlet before us treats.

In reference to the appearance of albumen in the urine, Dr. Smith asks whether it may not, under certain circumstances, be a salutary symptom. "May it not be," he says, "an effort of nature to remove from the system a material which might be converted into an inimical substance?" Nature, he thinks, is so conservative in her processes, that we have no right to regard the escape of albumen from the blood into the renal secretion as in all cases due to mechanical causes. Moreover, he has found that in patients threatened with uræmic symptoms the appearance of a large amount of albumen in the urine was often followed by an improvement of the symptoms. With a view of testing how far the amount of albumen in the urine depended upon the quantity of albuminous food eaten, he directed that the urine of two patients should be examined daily: first, while they were allowed an ordinary mixed diet; and, secondly, while they were restricted chiefly to rice and arrowroot. The result in both cases was, that the amount of albumen excreted was very much diminished during the ingestion of starchy food. While there is, therefore, no question that the restricted diet is of advantage in the treatment of the disease, there is equally no doubt that the excesses of the table play very frequently a large part in its causation, and this remark is true as well of eating as of drinking.

To the use of alcoholic liquors has generally been ascribed much of the renal disease that exists in this country and England, and the result of Dr. Smith's observation is to confirm the general impression in this respect, notwithstanding the effort made by Dr. Dickinson, of London, to prove the contrary. Dr. Smith thinks that Dr. Dickinson's conclusions, although apparently correct, are liable to the criticism. that among the fifty patients classed as those dying from other causes than delirium tremens, and among whom it will be recollected the disease of the kidneys was almost as frequent as among the fifty dying from mania à potu, may have been many who had been at some time in their lives intemperate, and this source of error will always be present in hospital practice. As a more certain way of arriving at the truth, our author compares the mortality from Bright's disease with the prevalence of intemperance. In New York the excessive use of ardent spirits is greater than in any of the large cities of the world, and the proportion of deaths from Bright's disease to deaths from all causes, is found to be greater than elsewhere.

Another reason, however, for the great frequency of this class of diseases in New York is to be found in the fact, that the average temperature of the city is 51° F., and "the researches of Dickinson have shown that places liable to a large proportion of renal disease have an annual mean temperature which is not lower than 46°, nor higher than 57°, and that Bright's disease chiefly abounds where the mean temperature is not far removed from 50°." A change of residence is, of course, recommended wherever the means of the invalid permit, and as our own country comprises within its limits a great variety of climates, he will rarely be obliged to seek in foreign countries a suitable place of refuge. It is obvious, however, that beneficial as a change of climate will often be found, its good effects will be counteracted by neglect to observe the laws of hygiene. To the large class, who in a city like New York must remain at home, we can only recommend that they should avoid all the known causes of the disease, and perhaps there is none more active in bringing on exacerbations and more easily avoided, than the exposure of the body while perspiring or insufficiently clad to the cold. In this connection Dr. Smith asks the pertinent question, whether it is not as much the duty of the physician to warn those whose occupations render such exposure frequent, of its danger, as it is in the case of those who work in metals. To lead and arsenic, among other causes, is assigned their due share in the production of these diseases.

Dr. Smith has noticed that deafness is not uncommon in those whose urine contains albumen, and is disposed to view this association of aural and nephritic lesions in the same light as we regard the coexistence of ocular and renal symptoms. He recommends that the urine should be examined in all cases in which the cause of deafness is obscure. Of course allusion is not here made to the mere dulness of hearing which frequently attends and is dependent upon uræmia.

The paper bears the evidence of careful preparation and a good deal of research, and we think it a valuable contribution to the study of Bright's disease. The word *Brightian* is frequently used and is certainly convenient; we do not, however, recollect having observed it in any other writer. J. H. H.

ART. XXXIII.—*New Facts and Remarks concerning Idiocy: being a Lecture delivered before the New York Medical Journal Association*, October 15, 1869. By EDWARD SEGUIN, M.D. 8vo. pp. 47. New York: Wm. Wood & Co., 1870.

THE present lecture may be viewed somewhat in the light of an appendix to a much larger work, published in 1866, under the title of "Idiocy, and its Treatment by the Physiological Method." Revised by the son of the author, Dr. E. G. SEGUIN. (8vo. pp. 457.)

The lecturer, after pointing out the necessity of a general recognition by physicians of the minimum of knowledge of the causation, premonitions, and diagnosis of idiocy, required of every practitioner, proceeds to a consideration of the differential diagnosis and prognosis between that form of idiocy which admits of improvement under a proper course of treatment, and the form which is irremediable. He then presents a brief notice of the State and private institutions for the treatment of idiots in this country, their number, and importance, with a special notice of the management pursued in the institutions at Syracuse, N. Y., and that at Barre, Mass. The subject of general and individual training, as pursued in the institutions just mentioned, is next considered.

"The State institution (at Syracuse, N. Y.) is but a school where idiots are received, if improvable, and kept as long as they do improve. In it the physiological treatment is applied mostly to groups; the children, constantly in contact, being raised up from idiocy by the incessant action of the whole on each. The sexes are completely separated, in dormitories and gymnasii—not

always at recess. They take together their meals, lessons, walks, musical exercises, dancing, and other evening entertainments.

"On the other hand: The private school (at Barre, Mass.) is an institution for the young and improvable idiot, and a life long retreat for hopeless cases. In it the physiological method is applied to a pupil by a teacher, who carries him, with strict regard to his individuality, from instinctive to intellectual operations, through personal imitation, etc. The inmates live in separate buildings; boys and girls have their grounds, schools, teachers, matrons, attendants, etc., apart. Some even eat and are taught in their own rooms. The best of them only take their meals with the physician's family and enjoy together evening games."

The lecturer remarks that it is difficult to understand, unless by actual observation, how the same thing—the development of intellect in the idiotic—can be done so well, and yet so differently, as it is accomplished at Syracuse and at Barre.

The topics next considered are "new causes of idiocy. Social evils prolific of nervous degeneracies. The four main causes of deterioration and of depopulation actually at work."

On the different forms of idiocy met with in the offspring of parents in the different ranks or conditions of society, the following remarks of the lecturer will be found interesting:—

"Mrs. Brown," wife of Dr. Brown, the principal of the school for idiots, at Barre, "whose opportunities of observation in respect to children of the more opulent classes have been greater than those of any other person now living, and whose turn of mind admirably qualifies her for clear and correct generalization, remarked to me that the children of endless siestas and satieties, or of moneyed and sensualistic hyperæsthesia, differed materially from those equally incapacitated by local influences, home privations, and mute motherly suffering during pregnancy; the former presenting more variety, the latter more uniformity in their symptoms. If this generalization of hers is verified, and I know of no facts or reasons to the contrary, she is entitled to rank with the ablest thinkers on this subject. To show the importance of her discovery, let us give it a shape and formula:—

"Among the nomadic tribes there are no more idiots than insane. In certain secluded settlements idiocy is a sequel to cretinism. Among the labouring classes, who know of civilization only by its hardships and suffering, idiocy is found in its simplest and most easily recognized forms—sthenic and asthenic.

"Among the wealthier classes, idiocy is not only oftener aggravated by accessory diseases, but also complicated with abnormal semi-capacities or disordered instincts, which produce heterogeneous types to an almost unlimited extent. It is from this class, almost exclusively, that we have musical, mathematical, architectural, and other varieties of the *idiot savant;* the useless protrusion of a single faculty, accompanied by a woful general impotence."

In the concluding portion of the lecture is pointed out the necessity of a school for the *comparative* study of *idiocy* and normal youth, and of the intellectual and physiological methods of education, with reference to the prevention of idiocy in the predisposed. D. F. C.

ART. XXXIV.—*Summer Mortality in the Cities of the United States.* Paper read before the New York Academy of Medicine, June 17th, 1869. By STEPHEN ROGERS, M. D. 8vo. pp. 18.

THIS paper recommends itself to the favourable notice of the physicians of all our larger cities, especially those of our Middle and Southern States by the correctness and practical importance of its teachings, so far as these go. From few of the positions laid down by the author in reference to the prominent

causes of the very great increase of mortality of the summer months over that of the colder seasons of the year, should we feel inclined to dissent. In no instance, however, would our dissent, even though we should succeed in establishing its validity, materially invalidate the correctness of his general conclusions.

Dr. Rogers has not exhausted the subject of which he treats. Besides the causes noticed by him, there are others by which the mortality of our summers, especially in our larger cities, is liable to be augmented—and particularly among the infant portion of the population; many, if not all, of which are capable of being counteracted by proper sanitary measures, rigidly enforced.

The remarks of Dr. R. in reference to the etiology and prophylaxis of cholera infantum are pertinent and sound. Indeed, his general directions for the avoidance of disease during the heat of summer are especially worthy of remembrance.

"We (physicians) must all believe, and then we shall all teach that *pure* undiluted milk of the cow is an excellent and the *best* generally available substitute for the mother's milk, and so in time we shall convince the people that barley-water, and arrowroot, and sago, and farina, and crackers, and flour, and all this class of articles, are never to be thought of as infant food while milk can be procured. We shall then prevent an untold amount of infant disease and death during our summers. First, by providing the enfeebled stomach with a proper and easily digested food in sufficient quantity; and second, by diminishing in a notable degree the general and growing practice of wet-nursing, than which we know of nothing that so directly tends to deprave public morality and to provoke infanticide.

"Let mothers nurse their own children while they have milk, taking it for granted that they never have too much. Let the orphan children have all the good, undiluted milk of the cow they will take, and cold water when they need it, and we have done all we can for them in the way of food.

"Keep the adult and the infant population as cool as possible during the intense heat of our summers. Encourage every mother to nurse and take care of her own children, if possible, and discourage wet-nursing, both at home and in public asylums, by every legitimate means. When the infant is only in part or not at all supplied by the breast, give it all the best cow's milk it will take, and our summer mortality will be very greatly diminished." D. F. C.

ART. XXXV.—*The Normal Temperature in Children.* By JAMES FINLAYSON, M. B., late House Surgeon to the Clinical Hospital and Dispensary for Children, Manchester. 8vo. pp. 19. Glasgow: Dunn & Wright, Printers, 1869.

On the Temperature of Children in Phthisis and Tuberculosis. By JAMES FINLAYSON, M. D., Manchester. 8vo. pp. 32. Glasgow: Dunn & Wright, Printers, 1869.

THESE pamphlets are reprints from the *Glasgow Medical Journal* of February and November, 1869, and contain a good deal of valuable information in regard to the temperature of children both in health and disease. From some observations made by Dr. Finlayson upon children convalescing from acute diseases, he was disposed to think that the temperature in children was frequently lower in the evening than in the morning, and that the amount of daily variation was greater in them than in adults. With the view of testing the accuracy of this impression two hundred and eighty-three observations were made upon eighteen healthy children, ages varying from twenty months to ten and a half years. The temperatures were all taken in the rectum, a method which Dr. Finlayson prefers, because "the maximum temperature is, as a rule, reached much sooner, the perfect position of the bulb is secured without fear of displacement, while the temperature of the part is, without doubt, a more *uniform* index of the internal

heat." It involves, moreover, he thinks, really no more trouble than the more usual method.

Dr. Finlayson's observations seem to have been made with great care, and the deductions which he draws from them will be found in the number of this Journal for April, 1869, p. 522.

In conclusion, he says: "It is well known, for example, that high evening temperatures are the rule, in cases of tubercular and enteric fever—often most difficult cases to make out in the young subject. A persistent *evening rise* of only one or two degrees comes to be very significant of mischief, if, in health, there ought really to be an *evening fall* to that extent. Many cases of tubercular disease in children have been alluded to by writers, and some have come under my own notice, in which the evening temperature could only be regarded as 'normal.' It remains to be seen whether an altered view of the word 'normal' may not here come to our assistance; but the question of pathological temperature is beyond the scope of the present paper."

The second paper is evidently a consequence of the first. Observations were made on eight children of different ages, the temperature being, as in the healthy children, taken in the rectum, and the following conclusions seemed to be established by them:—

1. There are three types of tubercular temperature.

a. Morning temperature, normal, or subnormal. Evening temperature, *more or less* elevated.

b. Morning and evening temperatures both abnormally high, with distinct tendency to evening exacerbations.

c. Morning and evening temperatures both abnormally high; exacerbations, without any constant or obvious reference to the time of day.

2. A continued elevation of the temperature in all cases of tuberculosis cannot be admitted, for if 98° to 99° F. be taken as the normal standard, some of Dr. Finlayson's observations and even some of Dr. Ringer's show that children with undoubted tubercular disease, advancing, and even, perhaps, leading to death, may have an evening temperature within the limits named.

3. There is, however, always some departure from the strictly normal course of the temperature in tubercular or phthisical children, for in all the observations the evening temperature was higher than the morning temperature, or higher than in healthy children, excluding, of course, the temperatures which were taken in the collapse just preceding death. In one case, where recovery was thought to have taken place, there was a tendency to evening diminution of temperature, as in health.

4. The thermometer is of service to the physician in the diagnosis of phthisis and tuberculosis.

a. It gauges the fever.

b. We sometimes discover from its use the typical course of tubercular fever, more or less high evening temperatures, with morning remissions, or

c. The absence of the strictly normal course of the evening temperature, which, if corroborated, may possibly assist us in diagnosis.

5. The relationship of the temperature to the nature of tubercular disease as yet rests in considerable obscurity, but it seems probable that the typical elevation of the temperature in this disease may really be due to the character of the concurrent inflammation. J. H. H.

ART. XXXVI.—*Archiv für Dermatology und Syphilis.* Herausgegeben von Dr. H. AUSPITZ, Docent an der Universität Wien, und Dr. FILIP J. PICK, Docent an der Universität Prag. II. Jahrgang, Drittes Heft. 8vo. Seit. 172. Prag, 1870.

THE medical periodical literature of Germany is exceedingly rich in journals not only embracing the medical science generally, but especially devoted to medicine in a special sense, to surgery and midwifery, and to the diseases of

women and children, as well as to each class of diseases according as they are seated in the different organs and tissues of the human body; while in addition they have journals devoted each to some one of the specialties connected with the collateral branches of medicine.

These journals are for the most part of a very high character, and under the care of editors of learning and experience. They furnish a rich fund of valuable information available for the most part in our daily ministrations at the bed-side of the sick. Occasionally we meet among their contents with a communication, the information contained in which would become more attainable by a large body of practitioners, were it not overloaded and obscured by too "much learning" of very little practical value. It is hardly worth while in reporting a series of observations bearing on the etiology, pathology, or therapeutics of any particular disease or class of diseases, or in detailing our general conclusions based upon our clinical experience, upon any point connected with the theory or practice of medicine, to go back to Hippocrates and give a very elaborate exposition of the views upon the subject of which we treat of every distinguished teacher up to the present time; yet many a contributor to the leading German journals may be detected sinning in this wise.

The "Archiv" before us is one of the most recent of the German medical journals. It is under charge of an able corps of editors and collaborators. So far as our acquaintance with the work extends, its contents comprises a series of valuable contributions adapted to increase our knowledge of the pathology and treatment of the specialties to which its pages are devoted—diseases of the skin and syphilis.

From a very long, but highly interesting communication which appears in the original department of the number of the Prague "Archiv" before us, on the "*prodromal exanthem*" of smallpox, from Dr. TH. SIMON of Hamburgh: We present the general conclusions of its author as a specimen of what matter the journal is composed. From its other contents, we propose, from time to time, to enrich the "Quarterly Summary" of the "American Journal."

We would remark that in an appendix to the communication of Dr. S. he gives the "statistics of the Hamburgh variolous epidemic of the years 1863–1864. These statistics are arranged in tabular form. To transfer them to our pages would occupy more space then their intrinsic value would warrant.

The general conclusions deduced by Dr. S. from observations made by him in thirty eight cases, a notice of each of which cases, more or less extended, is presented in the paper before us, are as follows:—

1st. There is belonging to variola a well-marked prodromal exanthem, of a dark scarlet color, even with the surrounding skin, occupying circumscribed portions of surface, accompanied or not, as the case may be, with hemorrhage. The exanthem occupies for the most part the backs of the hands and the upper surface of the feet, or the folds of the knee or elbow-joint.

2d. The circumscribed portions of surface which are occupied by the prodromal exanthem before the appearance of the variolous efflorescence usually remain free from the smallpox. This has been observed to be true of all parts of the surface excepting in the neighbourhood of the inferior abdominal region and some other regions of the trunk.

3d. In the greater number of cases the prodromal exanthem precedes by nearly twenty-four hours the occurrence of the first stage of the variolous eruption, and continues in some instances for a day or two beyond this period. On certain parts of the surface it may continue present until variolous vesicles have become fully developed—even in some cases the prodromal exanthem does not entirely disappear until after the maturation of the pocks has commenced.

4th. It, undoubtedly, is often the case that the prodromal exanthem transcends all the other initial symptoms. So marked is the initiatory chill and the subsequent increase of temperature that the first exanthem must be received as the initial symptom of the actual variolous attack.

5th. It is a question whether in certain cases, the occurrence of a characteristic prodromal exanthem previously to the setting in of fever will enable us certainly to foretell the occurrence of a variolous attack. If, says Dr S., the prodromal exanthem appears on the second or third day of the attack it will exer-

cise no influence upon the course of the fever (the temperature of the patient), while, in general, on the other hand, there is a fall in the temperature of the patient's surface on the first outbreak of variola.

6th. There are cases, however, in which the occurrence of the prodromal exanthem is to be received as furnishing an undoubted critical prognosis, inasmuch as when this occurs, the subjective feelings of distress experienced by the patient diminish or disappear, and the increased temperature terminates critically. With the first appearance of the variolous eruption an increase of febrile heat occurs, or from a normal temperature there will ensue a secondary accession of fever.

7th. In the epidemic of smallpox which prevailed in Hamburgh during the years 1863 and '64, from the observations made by Dr. S., it appears that the prodromal exanthem occurred far more often in males than in females. In a prognostical point of view its value was almost none. It was found that the cases in which it occurred, were proportionately more severe and fatal than those in which it was absent.

8th. The protective power of an attack of variola (*blattern*) remains very complete for a term of *fourteen* years, at the termination of which the protection is liable in a large number of cases suddenly to terminate. Individuals who remain proof against the contagion of variola up to their thirtieth year, present a proportionately perfect resistance to a subsequent attack.

D. F. C.

ART. XXXVII.—*Chloroform* versus *Pain, and Paracentesis of the Bladder above the Pubes.* By the late J. H. JAMES, F.R.C.S., etc. etc. 8vo. pp. 61. London: John Churchill and Sons, 1870.

A SHORT preface to this slender volume informs us that, among many valuable papers left by the deceased author, were the two "tractates" here presented to the public; they are published by the author's executors, who trust that they will be welcome "to some whose valued approbation encouraged him to labour through many infirmities," and as a means of discharging "a debt of filial love."

The first "tractate" compares the relative advantages of chloroform inhalation or the induction of anæsthesia generally, and of the pain which it is meant to relieve or prevent; and the author comes to the conclusion (which we doubt not our readers will consider a wise one) that under certain circumstances anæsthesia is better than pain, and that the use of chloroform or other means of inducing insensibility is therefore occasionally justifiable. The last section of the first "tractate" is headed "Practical Remarks on some Emergencies specially threatening Life;" the author recommends various "*immediate* succors," such as dashing cold water in the face, vigorous friction, the admission of a current of cold air, mustard emetics, the application of boiling water, saffron tea, and peppermint cordial. These somewhat diverse remedies are advised—rather indiscriminately—in cases of collapse, hemorrhage, asphyxia of new-born children, cholera morbus, acute laryngitis, alarming symptoms supervening during bronchitis, and "swallowing liquids the wrong way." The exact order in which these "succors" are to be employed is not stated, but we suppose if a dying patient could be neither frozen nor boiled, and obstinately refused to vomit, it would be proper to administer saffron tea—and even this by enema, lest it should be swallowed the wrong way. "In cases of lipothymia various methods are proposed. Thus, on the one hand we have brandy and ammonia, on the other cold water, which is often the best,[1] but then it should be just pumped, and containing, it may be, free oxygen—at all events some peculiarly stimulating quality, and on this, more than on the temperature, its value depends." Cold water is certainly a more convenient remedy than brandy and ammonia—especially in practice among charity patients; we are reminded by

[1] Ἄριστον μὲν ὕδωρ. [*Pindari Olymp.*, I. 1.]

the above sentence of a precept in that standard obstetrical work "Aristotle's Compleat and Experienc'd Midwife,"[1] which directs that if a pregnant woman "happens to long for anything which she cann't obtain, let her presently drink a large Draught of pure cold Water."

We might cull from Mr. James's pages many other maxims of undoubted wisdom—such as that patients who are too ill to rise, should by all means remain in bed—but we hasten on to the treatment of "cases of emergency, . . . from chloroform." This consists in (1) "raising the head of the table or bed a few degrees . . . by placing hassocks, pillows, or other suitable materials at hand," (2) in ejecting "all useless persons" from the apartment, (3) keeping the air in motion "by pumping the room by the door or by fans, and opening every door or window, (4) sprinkling Sir W. Burnett's solution[2] upon fans which are then made to "play around the patient's head," (5) briskly rubbing the chest and stomach with a rough towel wetted with a mixture of vinegar and salt, and then applying a large piece of hot flannel, and (6) the application of "the boiling water blister." We must confess that were we in danger of death from chloroform, we should prefer to stake our chances upon *artificial respiration* (which is here not even alluded to), than upon either chloride of zinc whisked about our head, or upon the "boiling water blister" to any less noble part of the person.

Mr. James's second "tractate" is upon "paracentesis of the bladder above the pubes," an operation which, he thinks, deserves more attention than it has generally received. Eight cases are narrated, in seven of which this operation was performed, in the eighth the puncture having been made through the rectum. Mr. James complains, and with some reason, of the discordant and often obscure directions given by surgical writers as to the best mode of tapping the bladder above the pubes, and yet the instructions which he himself gives, seem to us not much clearer than those with which he finds fault; thus with regard to the direction in which the trocar should be thrust, he tells us that in dealing with thickened and contracted bladders "it would seem probable that a horizontal direction, or nearly so, would give the best chance of entering the cavity," forgetting that though the *horizontal* direction might be proper enough while the long axis of the patient's body was in a *vertical* plane, some other direction would have to be chosen were the patient in a recumbent or even semi-recumbent position. For distended bladders, but with normal walls, Mr. James recommends a slightly curved trocar, four or four and a half inches long, introduced about one inch above the pubes, and directed a little downwards. For bladders with greatly thickened walls he apparently prefers a straight trocar, five inches long, introduced as before mentioned in a "horizontal direction."

Upon one point we are glad to be able to indorse what Mr. James says, in the most unqualified manner;—and that is in the expression of the opinion that "the catheters of the present day do not present the most favourable curve." On the contrary, modern instrument-makers seem to vie with each other as to who shall make a catheter least easy of introduction. J. A., Jr.

ART. XXXVIII.—*Variola: Causes, Nature, Prophylaxis, and Treatment. Report of the Committee appointed by the St. Louis Medical Society*, Jan. 15, 1870. By G. SPINZIG, M.D.

Conférence Médicale de Paris pour l'examen de la Question de la Vaccine. Cinquième Séance (22 Juin, 1870) *Procès-Verbal. Tribune Médicale*, 26 Juin, 1870.

THE positions assumed by Dr. Spinzig, the author of the report to the St. Louis Medical Society, are as follows: 1st. Variola is dependent upon general

[1] Fourth edition, London, 1721, p. 30.
[2] A solution of chloride of zinc.

causes common to other diseases. 2d. The eruptive characteristics by which variola is recognized are transitory phenomena as necessitated (fixed) resultants of the operations of physical laws. 3d. No "specific" or "contagious" virtue can be ascribed to this disease, and "infection" is only accomplished by actual *inoculation* from its matter, which, however, is common to other decaying and putrid animal substance. 4th. Vaccination *is entirely devoid of "protective" power*, and *totally* an unwarrantable practice, as most serious and destructive consequences are thereby inflicted upon the human organism. 5th. Prophylaxis and amelioration of variola only rest on those sanitary measures that promote health.

It will hardly be expected that we should inquire into the validity of the foregoing propositions, or attempt a refutation of the very futile efforts made by Dr. S. to give them even a character of plausibility. It will suffice to say that the conclusions of the writer are in conflict with the experience of the whole medical world, and, so far as regards his negation of the protective power of vaccination, he repudiates the positive results of tests put in execution, upon a most extended scale, in Europe and this country.

By the Medical Conference of Paris a very large amount of documentary and verbal information was collected, embracing the experience and convictions of the leading physicians of France and her dependencies. An analysis of this mass of testimony, according to M. Daly, to whom the analysis was intrusted, shows invariably the truth of the following leading positions, which, it will be perceived, are diametrically opposed to those laid down in the St. Louis Report, in reference to the same points of the questions it discusses: 1st. Variola attacks a large number of the non-vaccinated and many of the revaccinated persons who are exposed to its contagion or infection. 2d. Variola is incomparably more severe when it occurs in the non-vaccinated and non revaccinated than in others. 3d. When variola makes its appearance in any community, it is invariably prevented from spreading, and promptly extinguished, when immediate vaccination or revaccination of the *entire* population is practised.

From the testimony received by the Parisian Conference it appears that the proportion of the revaccinated liable to variolous infection is 2.33 per cent. It is extremely probable, to M. Daly very certain, that this small percentage of those liable to infection among the revaccinated, mostly of a less grave form of infection, would be sensibly reduced, were attention had to the question, whether the revaccination had not been practised at too remote or too recent a period, to render its protective agency certain, or whether, in fact, the revaccination had been at all effective.

The meteorological question bearing upon the occurrence of variola in an epidemic form has been carefully examined by M. Amédée Tardieu, who, while he does not contest the protection from smallpox afforded by vaccination in ordinary seasons, yet believes that such prophylaxis will often fail when the disease prevails epidemically. Yet, remarks M. Daly, the increased development of epidemic variola within late years, during which the meteorological conditions must have been necessarily various, proves that these conditions can have but very little, if anything, to do in causing variolous epidemics.

M. Gallard is of opinion that the protection from vaccination has become less effective from the practice which has prevailed for some years, of performing vaccination on infants a few days after birth. This opinion, says M. Daly, is worthy of a serious examination, inasmuch as it emanates from a learned and judicious mind, but it is simply an opinion—an assertion, as yet unproved. But, he adds, that which is not a mere opinion is, that the protective efficiency of the vaccine virus becomes, by constant use, deteriorated. Were this not the case, why should revaccination have become legitimately recognized? Why should we see infants of five years of age, who had been vaccinated a short time after their birth, attacked with smallpox? Or, again, why was recognized the necessity of resorting to the cow for a renewal of our stock of vaccine matter?

The facts collected by the Parisian Conference all point to the deterioration which vaccine matter experiences after it has passed for a series of years,

through the human system, and to the consequent necessity of recurring at short intervals to the cow for a new supply. M. Gallard prefers a recourse to the matter produced in the sore heel (grease) of the horse. In this opinion M. Daly coincides, since, as he remarks, he read the important communication from M. Le Duc de Versailles, which appeared in the number of *La Tribune* of the 19th of June, 1870. D. F. C.

ART. XXXIX.—*Practical Anatomy; a Manual of Dissections.* By CHRISTOPHER HEATH. Edited, with Additions, by W. W. KEEN, M. D. First American from the Second English Edition. Philadelphia: H. C. Lea, 1870.

NUMEROUS as the published guides for dissectors have been, scarcely any seem to fulfil all the requirements of the student. Valuable anatomical information is often sacrificed to lengthy discussions on niceties of incisions and rules for delicate processes of disintegration of the cadaver; while occasionally the "Dissectors," as these works are familiarly called, are swollen into the ponderous dimensions of systematic treatises on descriptive anatomy. The work before us seems to have successfully aimed at a happy medium; it is full and yet concise, while its directions for the use of the knife are judiciously woven into the general mass of anatomical details. The additions made by the American editor bear the evidence of manipulation by an experienced anatomist, who is thoroughly alive to the needs of the student at the dissecting table. They are profuse, practical, and appropriate. Without alluding particularly to the multitude of minor corrections or additions bracketted, if we may so speak, on almost every page of the text, we may call especial attention to the editor's general remarks on hernia (p. 129), with the original diagram accompanying it, to the scheme and plan for studying the triangles of the neck (p. 334); the description of the action of some of the muscles of the lower extremity as ligaments (p. 185); the anatomy of the superior laryngeal nerve, according to Luschka; the description of the Y-shaped ligament of Bigelow (p. 209), etc. etc. Twenty entirely new and original cuts have been added in the American edition. Some of these diagrams will be extensively copied by anatomical teachers for class demonstrations. Dr. Keen has also made the action of some of the muscles more technically and absolutely clear, that for instance of the supinator radii longus (p. 75), whose supinating power is the weakest of all its actions. The rules for the best modes of studying certain parts of the body, the abdominal viscera, for example (p. 260), are also calculated to impress themselves vividly on the memory of the student. The most important change of construction of the text made by the editor has been in placing, for convenience of dissection, the perinæum, abdominal wall, and hernia in close proximity to the leg. The directions for the dissection of the eye have been rewritten by him, and are now very full and exact, being doubtless the result of the experience derived from repeated and careful demonstrations in the lecture room.

Important matters not generally discussed in works of this kind, are embraced in the appendix, being full and complete directions for the preservation and injection of subjects, and in regard to anatomical preparations in general. This very useful chapter is also from the pen of the American editor.

The volume occupies from five to six hundred pages, and is a beautiful specimen of typographical execution. R. J. D.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Functions of the Sympathetic System of Nerves.*—Dr. Edward Meryon read an interesting paper on this subject before the Royal Medical and Chirurgical Society (June 14th, 1870). He commenced by showing that every sympathetic ganglion, in all animals, is connected with three forms of nerve-fibres, namely, motor, sensory, and sympathetic proper, or the fibres of Remak. That on entering a ganglion these several forms of nerves separate into their component fibres, and unite with the ganglionic caudate cells. That each ganglion thus becomes a nervous centre in its own sphere, receiving, transmitting, originating, and reflecting impressions, on which the functions and nutrition of organs depend.

Experiments and observations are next adduced to prove that the sympathetic has little or nothing to do with the motions of the iris; but that these actions depend upon the third cerebral nerve, and the fibres proceeding from the regio cilio-spinalis of Wagner and Ruiter.

Dr. Meryon then enters into the inquiry relative to the special function of each different form of nerve-fibre respectively, which goes to or proceeds from every ganglionic centre; and, from many experiments and cases, he shows that the motor fibres which proceed from each ganglion, having their terminal fibres extending to the most minute arterioles, give an impetus to the blood current, and are subservient to the functions of the secretory tissues. That the sensory fibres communicate an organic or vital sense to the secretory glandular tissues, just as the muscular sense is conferred on, and conveyed from, the muscles to the nervous centres, to communicate a stimulus to muscular action; that, in fact, the sensitive nerves affect the histological tissues, without operating *immediately* upon the bloodvessels. Finally, that the fibres of Remak—or the sympathetic fibres proper—having a correlative ramification with the motor fibres, regulate the stream of nutriment which is conveyed by the arterioles into the cell-territory for secretion and nutrition. This latter function is effected by the restraining or inhibitory attribute of the fibres of Remak.

On these views Dr. Meryon proposes, in a future paper, to suggest a system of rational therapeutics, founded upon the properties which many medicines are known to possess, of inducing, through the influence of the vaso-motor nerves, the contraction or dilatation of bloodvessels.—*Lancet*, July 16th, 1870.

2. *Rapidity of the Absorption of Carbonic Oxide by the Lungs.*—M. Claude Bernard presented to the Academy of Sciences for M. Gréhant a note on this subject. The author reports some experiments which he has recently performed on dogs, from which it results that an animal which respires air containing

one-tenth of carbonic oxide—a highly toxic mixture—the arterial blood between the tenth and twenty-fifth second, is found to contain 4 per cent. of carbonic oxide and less oxygen than normal blood (14.6 per cent.); and between one minute and fifteen seconds and one minute and thirty seconds, a very large proportion of carbonic oxide is found in the blood (18.4 per cent.), and the oxygen is very greatly diminished (4 per cent.).—*Archiv Gén. de Méd.*, Aug. 1870.

3. *Physiological Action of Carbonic Acid.*—Dr. LEVEN publishes (*Archives de Physiologie*, No. 1, 1870, p. 177) the following results of an investigation into the physiological action of carbonic acid. 1. Whether respired in the pure state or mixed with a certain proportion of air, it does not excite any convulsive action. 2. After absorption, it acts directly on the muscular fibres of the heart, modifying their chemico-physical and physiological properties, and destroying their contractibility. 3. It has no action on the blood-globules, nor on the bloodvessels. 4. It "stupefies" the brain and the medulla oblongata: the stupefaction of the brain manifesting itself by suspension of its functions—of intelligence, sensibility, and voluntary movement; that of the medulla oblongata, by arrest, succeeding impairment, of the respiration and circulation. 5. The reflex function of the spinal cord and the functions of the nerves are unaffected by this gas, and the contractibility of the muscles is likewise uninjured. 6. By the suspension of the functions of the brain, and of the medulla oblongata a condition of death-like sleep is produced, which can be removed only if it has existed for a certain limited period, varying with the species and age of the animal; and oxygen is the only substance that is capable of awakening the brain and the medulla oblongata from this death-like sleep. 7. If, by a proper mixture of carbonic acid and air, death is gradually produced (for example in about half an hour) the temperature of the body diminishes nearly two degrees centigrade, the diabetes supervenes. Sugar is found in large quantity in the blood and viscera; and in the rabbit the urine yields nearly 10 grammes of sugar to the litre. 8. Oxygen and carbonic acid produce contrary effects. The former excites the cardiac contractions, reddens the blood-globules, gives life to the brain-cells, stimulates the medulla oblongata, and acts peculiarly as a nourishing and vivifying gas; the latter, on the other hand, is a true poison, it is a gas that kills by destroying the physiological properties of heart, brain, and medulla oblongata, and it is necessary that it should be continually eliminated. Dr. Leven's experiments were made on rabbits, cats, and guinea-pigs; to whom the gas was administered either pure or mixed with definite proportions of atmospheric air, and either by inhalation during ordinary respiration or by introduction into the trachea through an artificial opening.—*Journ. Anat. and Phys.*, May, 1870.

4. *Action of Chloroform on the Colour of the Blood.*—We abstract the following interesting observations on the action of chloroform from Professor PAUL BERT'S *Leçons sur la Physiologie Comparée de la Respiration*, 1870 (p. 137). The numerous authors who have written on the action of anæsthetics are not agreed as to the influence these substances exercise on the colour of the blood. According to some, the blood retains its normal colour; according to others, it becomes black in the veins, and even in the arteries its hue is much darkened. The latter opinion has originated the idea that the anæsthesia of chloroform is in reality a state of asphyxia. When an animal is submitted to the influence of an anæsthetic a period of excitement is in the first place produced. It has been already shown that this excitement, in the case of animals with low intelligence, is due to an irritation of the facial and buccal mucous membranes by the anæsthetic vapours; in animals of higher intelligence, such as man and certain dogs, it is, however, also due to delirium, originating undoubtedly in abnormal cerebral sensations (see *Journal of Anatomy and Physiology*, Nov. 1867, p. 185). It is during this period, when violent movements occur, that the venous blood becomes black; and if it last long, and especially if it be accompanied with embarrassed respiration, the colour of the arterial blood may also become dark. Succeeding this stage of excitement, however, is one of resolution, during which the arterial blood becomes bright red, and even the

venous blood may now be of a marked rose colour. If the quantity of chloroform is gradually increased, the animal dies; in which case asphyxia and not syncope has been caused, and the arterial blood assumes a black hue such as that of ordinary asphyxia. Bert has analyzed the blood drawn during the period of complete chloroform resolution, and contrasted the results with blood drawn before the administration. In one case, before anæsthesia, the blood contained, in 100 parts, 7.3 per cent. of oxygen, and during the period of resolution 12.4 per cent. In another case, 15.1 per cent. of oxygen before, and 18 per cent. during resolution. Thus, during the *uncomplicated action* of an anæsthetic, the blood is more rich in oxygen than during the normal condition. It is therefore erroneous to regard anæsthesia as a state of asphyxia.—*Journ. Anat. and Phys.*, May, 1870.

5. *Production of Bone from Medulla.*—An interesting "provisional communication" appears in No. 24 of the *Centralblatt*, from the pen of M. Baikow, on the effects of transplantation of medulla. M. Baikow made two series of experiments. In one set, which were thirty-eight in number, the medulla from the femur or tibia of a dog was placed under the skin of the back of another dog; whilst in a second set, twenty-eight in number, the marrow was inserted beneath the skin of the back of the same individual. The first set of experiments all failed; bone was formed in none. In the second set fourteen cases succeeded, *i.e.*, bone was actually formed; whilst in the remaining six cases the changes that occurred in the early stages were followed. The remaining eight cases were unsuccessful. In the fourteen successful cases bony masses were found in various stages of development, from the earliest rudiments to complete formation, with Haversian canals, lamellæ, stellate lacunæ, and medullary cavities filled with medulla. Up to the present time, M. Baikow's experiments extend only to the seventy-sixth day. In one case, at the sixty-first day, not only was complete bone present, but fibro-cartilage. The results of examinations showed that the medulla, after transplantation, first passed into the condition of fibrous tissue, from which, by the proliferation of the cellular elements, bone or cartilage was developed. M. Baikow's results are in opposition to those of M. Ollier, but corroborate those of M. Goujon.—*Lancet*, July 16th, 1870.

6. *Pre-pubic Lymphatic Gland.*—M. Durac directs attention, in the *Gazette Méd.-Chir. de Toulouse*, April, 1870, to a lymphatic gland situated just in front of the pubes, and at the root of the penis. This gland, he considers, has not been described; and probably forms the starting point of inflammatory swellings, either specific or not, which have been observed in that region. The author has noticed this gland to become enlarged and indurated in a syphilitic patient. He has, moreover, published in a number of the same journal for last year a case of pre-pubic abscess, which, probably, was connected with suppurative inflammation of the gland alluded to.—*Lancet*, July 23, 1870.

7. *Kryptophanic Acid.*—At a recent meeting of the Chemical Society Dr. Thudichum described a new organic acid—kryptophanic acid, the presence of which he considers the cause of the acid reaction usually exhibited by urine.

It is extracted somewhat as follows: "The urine is rendered alkaline with milk of lime and filtered; it is then acidified with acetic acid and evaporated down to a syrup; after standing some time, the syrup is drained from the crystalline deposit and is mixed with strong alcohol. On shaking, a dark-coloured precipitate forms, from which the fluid is decanted.

"The precipitate, which is the impure calcium salt, is washed with alcohol, dissolved in a small quantity of water, and filtered through calico. On again adding alcohol, it is re-precipitated. By repeated solution and re-precipitation in this way it may be obtained nearly pure.

"To complete the purification, the calcium salt is dissolved in water, mixed with solution of lead or copper acetate, the liquid filtered from the impure basic salt, and the clear solution mixed with alcohol. Pure lead or copper kryptophanate is then precipitated. To obtain the acid, the lead salt may be

decomposed with an equivalent quantity of dilute sulphuric acid, or the copper salt by sulphuretted hydrogen.

"The acid is a colourless gummy mass, soluble in water; it decomposes carbonates with effervescence. The aqueous solutions of the earthy salts give, amongst other reactions, with mercury nitrate, a voluminous white precipitate. The ordinary estimation of urea by Liebig's process is thus shown to be liable to errors, and to require a correction for kryptophanic acid, which has probably increased all values for urea from 5 to 10 per cent. Kryptophanic acid may be considered a dibasic acid of the formula $C_5H_9NO_5$; or it may be represented as tetrabasic with the formula $C_{10}H_{18}N_2O_{10}$. In that case, the metallic salts, of which a considerable number are described in the original paper, will have the general formula $C_{10}H_{14}M'_4N_2O_{10}$. Many of the salts are soluble in water, but some, as those of silver, lead, and mercury, are insoluble."—*The Druggists' Circular*, Sept. 1870, from *The Pharmaceutical Journal.*

MATERIA MEDICA, GENERAL THERAPEUTICS AND PHARMACY.

8. *Experiments on the Effects of Alcohol* (*Ethyl Alcohol*) *on the Human Body.* By E. A. PARKES, M.D., F.R.S., Professor of Hygiene in the Army Medical School, and Count CYPRIAN WOLLOWICZ, M.D., Assistant Surgeon, Army Medical Staff.

As a knowledge of the physiological effects of alcohol on the human body is a matter of great importance, and as previous observations leave some points in doubt, we took the opportunity which the willingness and zeal of a very intelligent healthy soldier afforded us of investigating this subject. In order not to lengthen the paper, we have given only our own observations, without referring to those of others.

The plan of observation was as follows: For twenty-six days the man remained on a diet precisely similar as to food and times of meals in every respect, except that for the first eight days he took only water (in the shape of coffee, tea, and simple water); for the next six days he added to this diet rectified spirit, in such proportion that he took, in divided quantities, on the first day one fluidounce (= 28.4 cub. centims.) of absolute alcohol; on the second day two fluidounces; on the third day four ounces; and on the fifth and sixth days eight ounces on each day. He then returned to water for six days, and then for three days took on each day half a bottle (= 12 ounces, or 341 c. c.) of fine brandy, containing 48 per cent. of alcohol. Then for three days more he returned to water.

There were thus five periods, viz., of water-drinking, alcohol, water, brandy, water.

Before commencing the experiments, the man, who had been accustomed to take one or two pints of beer daily, abstained altogether from any alcoholic liquid for ten days.

This man, F. B., is twenty-eight years of age, 5 feet 6 inches in height, and his usual weight is 134 or 136 lbs. He is finely formed, with little fat, and with largely developed powerful muscles; he has a clean smooth skin, a clear bright eye, good teeth, and is in all respects in perfect health. He is very intelligent, and assisted us so much that we are quite certain that there has not been a mistake even for a minute in the time of taking the temperatures and passing the urine. As he had always been accustomed to smoke, we thought it proper to allow him half an ounce of tobacco daily, for fear the deprivation of it might disturb his health.

In addition to the experiments recorded in this paper, we tested the accuracy of his vision, and the muscular power before and during the use of alcohol; but as we could not detect any difference, we do not give the experiments.

Our object being to test the dietetic effects of alcohol, we gave it in small and large quantities, but avoided producing any extreme symptoms of narcotism. * * *

General Conclusions.

1. One and two fluidounces (28.4 c. c. and 56.8 c. c.) of absolute alcohol given in divided quantities in 24 hours to a perfectly healthy man seemed to increase the appetite. Four fluidounces lessened it considerably; and larger quantities almost entirely destroyed it. On the last day of alcohol the man was three-quarters of an hour eating 8 ounces of bread, and could hardly do so. Had he been left to his own wishes the amount of food taken would have been much diminished.

It appears, therefore, that in this individual some point near 2 fluidounces of absolute alcohol is the limit of the useful action on appetite; but it is possible that if the alcohol had been continued a smaller quantity would have lessened the appetite.

In other healthy persons it may be different from the above; in most cases of disease, when digestion is weakened, it seems probable that a much smaller amount of alcohol would destroy appetite.

2. The average number of beats of the heart in 24 hours (as calculated from 8 observations made in 14 hours), during the first or water period, was 106,000; in the alcoholic period it was 127,000, or about 21,000 more; and in the brandy period it was 131,000, or 25,000 more.

The highest of the daily means of the pulse observed during the first or water period was 77.5; but on this day two observations are deficient. The next highest daily mean was 77 beats.

If instead of the mean of the 8 days or 73.57 we compare the mean of this one day, viz. 77 beats per minute, with the alcoholic days, so as to be sure not to overestimate the action of the alcohol, we find:—

On the 9th day, with 1 fluidounce of alcohol, the heart beat 4300 times more.
On the 10th day, with 2 fluidounces, 1872 times more.
On the 11th day, with 4 fluidounces, 12,960 times more.
On the 12th day, with 6 fluidounces, 30,672 times more.
On the 13th day, with 8 fluidounces, 23,904 times more.
On the 14th day, with 8 fluidounces, 25,488 times more.

But as there was ephemeral fever on the 12th day, it is right to make a deduction, and to estimate the number of beats in that day as midway between the 11th and 13th days, or 18,432. Adopting this, the mean daily excess of beats during the alcoholic days was 14,492, or an increase of rather more than 13 per cent.

The first day of alcohol gave an excess of 4 per cent., and the last of 23 per cent.; and the mean of these two gives almost the same percentage of excess as the mean of the 6 days.

Admitting that each beat of the heart was as strong during the alcoholic period as in the water period (and it was really more powerful), the heart on the last two days of alcohol was doing one-fifth more work.

Adopting the lowest estimate which has been given of the daily work done by the heart, viz., as equal to 122 tons lifted one foot, the heart during the alcoholic period did daily work in excess equal to lifting 15.8 tons one foot, and in the last two days did extra work to the amount of 24 tons lifted as far.

The period of rest for the heart was shortened, though perhaps not to such an extent as would be inferred from the number of beats; for each contraction was sooner over.

The heart on the fifth and sixth days after alcohol was left off, and apparently at the time when the last traces of alcohol were eliminated, showed in the sphygmographic tracings signs of unusual feebleness; and perhaps in consequence of this, when the brandy quickened the heart again, the tracings show a more rapid contraction of the ventricles, but less power than in the alcohol period. The brandy acted, in fact, on a heart whose nutrition had not been perfectly restored.

The peripheral circulation was accelerated and the vessels were enlarged

and the effect was so marked as to show that this is an important influence for good or for evil when alcohol is used.

Referring only to this healthy man, it is clear that the amount of alcohol the heart will bear without losing its healthy sphygmographic tracing is small, and it must be supposed that some disease of heart or vessels would eventually follow the overaction produced by large doses of alcohol.

3. Although large doses of alcohol lessened appetite, they did not appear to impede primary digestion, as far as this could be judged of by the sensations of the man; nor did they seem to check the normal chemical changes in the body which end in the elimination of nitrogenous excreta, of phosporic acid and of free acidity. In other words, we were unable to trace either the good or the evil ascribed to alcohol in this direction: it neither depressed these chemical changes nor obviously increased them; it neither saved the tissues nor exhausted them; and even in the period of ephemeral fever its effects were negative.

But, of course, in these experiments we were not dealing with diseased tissues, nor with structures altered in composition by long-continued excess of alcohol. The results in such cases might be different; and it may be desirable to repeat that though appetite was lessened, the amount of food taken was the same each day.

4. Neither pure alcohol nor brandy, in the quantities given, lessened the temperature; in other words, they did not arrest the chemical changes which produce animal heat, or lessen the processes which regulate its amount, any more than they influenced nitrogenous tissue-change. Alcohol in no way influenced the rise of temperature during the attack of ephemeral fever; it neither lowered nor increased it. This appears to us conclusive against the proposal to use alcohol as a reducer of febrile heat.

On the other hand, it is not clear that alcohol increased the temperature: it produced subjective feelings of warmth in the stomach, in the face, round the loins, and over the shoulders; but at the time when these were felt (for about one hour after tolerably large doses) the thermometer in the axilla and rectum showed no rise. This is best seen by comparing the two o'clock observations, which were taken about half an hour after dinner. The feelings result from the enlargement of the vessels and the greater flow of blood through them; so, also, the ephemeral fever was decidedly not made worse by it.

5. An effect on the nervous system was not proved by any evidence of increase or decline in the amount of phosphoric acid; but there were marked subjective feelings; and possibly also the increased action of the heart was a nervous condition, as the short contractions of the ventricle were like those ascribed to alterations in the nervous currents. The feelings which were produced by four fluidounces daily, and in a still higher degree by the larger quantities of alcohol, proved that narcotism was produced. There was no exhilaration, but a degree of heaviness, indisposition to exertion, and loss of cheerfulness and alacrity; there was slight headache, and even some torpor and sleepiness. All these effects were more marked with brandy. The commencement of narcotism was therefore produced in this man by some quantity much less than 4 fluidounces, and probably nearer 2. It was nearly this amount which also commenced to destroy the appetite; and it may also be observed that a considerable rise in the frequency of the pulse occurred on the third day of alcohol, when 4 ounces were taken, whereas on the days with one or two ounces the pulse, though quickened, was so in a much less degree.

Putting therefore these points together, viz., that the obvious effect on the nervous system (*i.e.*, narcotism), the loss of appetite and a great rise in the quickness and frequency of the heart's beats occurred at the same time, it seems fair to conclude that there must be a relation between the phenomena, or, in other words, that all were owing to nervous implication.

It appears, then, clear, that any quantity over two ounces of absolute alcohol daily would certainly do harm to this man; but whether this, or even a smaller quantity, might not be hurtful if it were continued day after day, the experiments do not show. It is quite obvious that alcohol is not necessary for him; that is, that every function was perfectly performed without alcohol,

and that even one ounce in twenty-four hours produced a decided effect on his heart, which was not necessary for his health, and perhaps, if the effect continued, would eventually lead to alterations in circulation, and to degeneration of tissues. It is not difficult to say what would be excess for him; but it is not easy to decide what would be moderation; it is only certain that it would be something under two fluidounces of absolute alcohol in twenty-four hours.

It will be seen that the general result of our experiments is to confirm the opinions held by physicians as to what must be the indications of alcohol both in health and disease. The effects on appetite and on circulation are the practical points to seize; and if we are correct in our inferences, the commencement of narcotism marks the point when both appetite and circulation will begin to be damaged. As to the metamorphosis of nitrogenous tissues or to animal heat, it seems improbable that alcohol in quantities that can be properly used in diet has any effect; it appears to us unlikely (in the face of the chemical results) that it can enable the body to perform more work on less food, though by quickening a failing heart it may enable work to be done which otherwise could not be so. It may then act like the spur in the side of a horse, eliciting force, though not supplying it.

The employment of alcohol in health and disease is so great a subject that we should have felt tempted to extend these remarks to some points of medical practice, had it been desirable to do so in this place. We will only say that while we recognize in these experiments the great practical use of alcohol in rousing a failing appetite, exciting a feeble heart, and accelerating a languid capillary circulation, we have been strongly impressed with the necessity for great moderation and caution. In spite of our previous experience in the use of alcohol and brandy, we were hardly prepared for the ease with which appetite may be destroyed, the heart unduly excited, and the capillary circulation improperly increased. Considering its daily and almost universal use, there is no agent which seems to us to require more caution and more skill to obtain the good and to avoid the evil which its use entails.

We wish to guard ourselves against the supposition that in speaking of alcohol and brandy we refer at all to wine and beer, which contain substances, in addition to alcohol, which may make their action in nutrition somewhat different. — *Glasgow Med. Journ.*, Aug. 1870, from *Proceedings of Royal Society*, No. 120.

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9. *On the Place of Wines in the Diet of Ordinary Life.*—The *Practitioner* contains some interesting articles "on the dietetic and medicinal uses of wines," by the Editor and Staff. The following are given as a summary of the points desired to be inculcated as to the place of wines in the diet of ordinary life:—

"1. Wines for daily use by healthy adults should not, on the average, contain more than ten per cent. absolute alcohol; eight or nine per cent. is better.

"2. If wine be used as the daily drink, it is best, so far as may be, to use only one kind at a time, and no other form of alcoholic liquid.

"3. Sound natural wines are to be obtained at the best economic advantage from the Bordeaux district; the red wines are to be preferred.

"4. Rhine wines (white) are equally excellent, but more expensive.

"5. Hungarian wines are also, in many instances, excellent, but are at present too dear for daily use except by the rich. They are also unequal in quality, owing to defects of manufacture.

"6. Greek wines labour under the same defects; the latter, especially, in an aggravated degree.

"7. The fortified wines, as a class, develop no proper vinous qualities till they have been some years in bottle. Sherry, however, is greatly superior to the other wines of this class, in the rapidity with which it develops the volatile ethers.

"8. Fortified wines in small quantities, especially sherry, for the reason just named, are the appropriate stimuli of certain kinds of infantile and youthful debility, and of the enfeebled nervous system of old persons. * * *

"From the time of puberty onwards, there arises a much greater suscepti-

bility to the injurious influences of alcohol upon the emotions and the character; and between the date of puberty and the age of twenty-five, or even thirty, it would be better, in ordinary cases, either to abstain altogether, or to limit the allowance to one-third or one-half the amount above named. Still, there can be no question that to many rapidly-growing lads an amount of alcohol (preferably as beer) strictly limited to these latter quantities is not only harmless but most actively useful."

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10. *Mode of Action of Conia.*—Drs. DYCE BROWN, and ALEXANDER DYCE DAVIDSON have recently been experimenting with this drug (see *Medical Times and Gazette*, July 9, 1870). The results obtained by them agree with Dr. Harley's (see number of this Journal for July, 1869, page 158), and they conclude, with him, that the chief action of conia is that of a paralyzer of the cranial motor centres in the first place, and, secondly, of the spinal centres, and not of the peripheral extremities of the motor nerves, as is maintained by Kölliker and Guttmann.

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11. *Physiological Action of Tobacco.*—In discussing the principles of the treatment of asthma by tobacco, Professor SÉE (*Bulletin Génér. de Therapeutique*, 15 Novembre, 1869, p. 385) mentions several important facts in relation to the physiological action of this remedy. One of its leading characteristics is the readiness with which tolerance to its action may be produced. Many observations have established this, among the most striking of which is that of Professor Traube, who found that while a small dose of nicotia given for the first time to a dog caused marked cardiac symptoms, the same dose administered a few hours afterwards was completely inert. Sée points out that, in reference to their power of producing tolerance, medicines may be divided into three groups: in the 1st, tolerance is decidedly produced, often almost immediately, as happens conspicuously with tobacco, and less so with opium, belladonna, Indian hemp, and arsenic; in the 2d, in place of tolerance, cumulative effects result, as with digitalis and strychnia; and in the 3d the effects are exactly proportional to the dose given, however frequently it may be repeated, as occurs with bromide and cyanide of potassium, etc. In reference to the influence of tobacco-smoking on the mental activity, it is asserted that a moderate indulgence produces a certain degree of cerebral excitation and facilitates mental work; but the abuse of this habit diminishes the mental vigour. Tobacco augments the secretion of the gastric and intestinal glands, and hence aids digestion; and it also acts as a diuretic. The action on the different organs appears to vary greatly with the dose. Thus, a small dose accelerates the heart's pulsations by direct excitation of the intra-cardiac ganglia; a somewhat large dose reduces the rate of the pulsations; and a lethal dose completely arrests the action by powerfully stimulating the vagi nerves. The evil effects of excessive tobacco-smoking are elaborately treated of in a memoir by Dr. A. Blatin (*Recherches Physiologiques et Cliniques sur la Nicotine et le Tabac*, Paris, 1870) which likewise includes an able investigation into the physiological action of nicotia. Dr. Kopf also contributes a paper on the same subject (*De la Nicotine, Thèse de Strasbourg. Gazette de Strasbourg*, 1870; and abstract in *Bull. Génér. de Therap.*, 30 Mars, 1870, p. 284).—*Journ. Anat. and Phys.*, May, 1870.

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12. *Anæsthetic Properties of Carbolic Acid.*—Mr. ERASMUS WILSON, Prof. of Dermatology in the Royal College of Surgeons, England, relates (*Journal of Cutaneous Medicine*, June, 1870) the case of an officer who was troubled with disease of the glans and prepuce, for the removal of which the Professor thought it necessary to make applications of equal parts of potassa fusa and water. This application was excessively painful and the cure was protracted. The patient's power of supporting further pain became exhausted. "There were reasons," Prof. W. says, "why chloroform could not be employed; local anæsthesia had, possibly from mismanagement, complicated the difficulty, and I was beginning to feel a little puzzled for the means of attaining my object, when it occurred to me to attempt to conquer the morbid irritability of the part

by means of carbolic acid. It may be premised that in consequence of this dread of pain, I had left the application of the caustic to the patient himself, merely encouraging him to proceed, and pointing out the spots which he should principally attack; and when I suggested, after some minutes of agony, that he should touch the raw surface with carbolic acid, he shrunk from the proposal, having on several occasions used it before, and found it very painful. Nevertheless, the occasion was pressing, and he brushed the surface with carbolic acid, and was gratified by finding that he could do so without suffering. The carbolic acid exercised its usual effect of coagulating the albumen of the surface, and producing a white film; and after repeated applications the film had reached a considerable thickness. Now was the time for the renewal of the original caustic, and after some hesitation it was applied; but, to the patient's astonishment and my own satisfaction, with an almost painless result. The caustic, which a few minutes before was utterly unendurable, could be used now, and with perfect freedom—almost without inconvenience. We followed up our discovery, and left very little of the surface for future operation.

"This anæsthetic property of carbolic acid was not altogether new to me; but I had never before seen its power so strikingly manifested. I have used it often since, and always with the most satisfactory result; and I employ it at present, very commonly, previously to the application of caustic to lupus and epithelioma. It benumbs the surface, it dulls the excessive sensibility of the superficial nerves, and it thereby permits the caustic action of our remedies, with a great reduction in the amount of pain. It admits, I have no doubt, of more extensive application, and will, I have reason to believe, come into general use for a similar purpose."

[Dr. J. H. Bill, Surgeon U. S. A., at present stationed at Fort Vancouver, W. T., communicated to us several months since, experiments made by him which demonstrate far more remarkably than the above the anæsthetic property of carbol. See his interesting paper in this No. of this Journal.—Ed.]

13. *Lactate of Iron.*—Mr. Jas. C. Dickinson extols (*Lancet*, Aug. 20, 1870) the use of this remedy in anæmia, general debility, leucorrhœa, hypertrophy of the spleen, for boils, and as a prophylactic against malarious fevers. He says, "it possesses all the properties of the other preparations of iron; as a blood-restorer it is a very effectual remedy; it does not produce constipation, is almost devoid of any disagreeable taste, and in most cases rapidly restores the appetite. As it possesses scarcely any astringency, it may be given when the stomach will not bear the more styptic preparations of iron.

"Messrs. T. Bell & Co., of Oxford Street, have on several occasions prepared for me the syrup, and it possesses all properties I have ascribed to the lactate in this paper.

"The dose for an adult is a teaspoonful, gradually increased to two, taken either in water or soda-water; and for children half a teaspoonful twice a day, and gradually increased according to age."

14. *Medicinal Pepsin.*—The very different reports made by physicians as to the value of this article, led Mr. R. V. Tuson to suspect that this difference resulted from the variation in the quality of the article, as prepared by different makers. He instituted accordingly a number of experiments with pepsin, from different manufacturers, and found them to vary in their digestive and other qualities. The result, he states (*Lancet*, Aug. 13, 1870), of nearly three hundred experiments upon albumen and fibrin, proves that the pepsin prepared by Messrs. Bullock and Reynolds, Hanover Street, Hanover Square, is superior in quality to that of any of the other makers he has tried.

15. *New Vesicant.*—M. Delpech draws attention to the fact that the emplast. vesicatorium of the French, Prussian, and other Pharmacopœias, has the disadvantage that the proportion of the active material cantharidin is very variable, that the presence of any oily substance facilitates the absorption of a dangerous poison; and lastly, that the resin is an unnecessary cutaneous stimulant, whilst it renders the smell of the plaster very unpleasant. An excellent vesicant,

which possesses none of these disadvantages, exists in the combination made by Dragendorff and Massing of cantharidin with alkalies. M. Delpech employs the cantharidinate of potash, which is very volatile, and possesses in a high degree the blistering power; from an alcoholic solution of cantharidin containing 2 grammes in 150, about 1.6 grammes fall on the addition of a concentrated solution of alkali of a precipitate which is absolutely insoluble in water. The best formula for the application of the preparation is gelatine 2.09, water 10, alchohol 10, cantharidinate of potash 0.20, and glycerine 9.5. The mass should be equably spread on a thin layer of gutta-percha, so that each square inch should contain a definite proportion of the salt; it may of course be made stronger or weaker at will.—*Practitioner*, Aug. 1870, from *Centralblatt*, No. 27.

16. *Report of the Committee of the Royal Medical and Chirurgical Society appointed to investigate Bain's and Pacini's Method of restoring Suspended Animation.*—The means adopted by the committee for pursuing the inquiry were by experiment upon the dead human body; and in order to test the relative merits of the methods proposed, they were contrasted with the plan adopted by Dr. Silvester. Details of a large number of observations were given in the report. The conclusions at which the committee arrived from these observations might be summed up as follows. It appeared that more air is introduced, as a rule, by traction from the shoulders than from the forearms and arms. Nevertheless, in the amount of air introduced, there is a greater difference when the same method is adopted with different bodies than there is between the two plans when practised upon the same body; this great difference being chiefly due to the size of the body, especially the amount of fat, the mobility of the walls of the chest, and the rigidity of the muscles. By either plan, the committee were of opinion that a sufficiently large quantity of air is without difficulty introduced. And it might be observed that in either case, on an average, more air is changed than in the act of ordinary tranquil respiration. In estimating the relative merits of the two plans, they were anxious to observe that other considerations are involved than that of the absolute and comparative quantity of air changed. They were unanimously of the opinion that the method advocated and practised by Dr. Bain was but a modification of the plan usually known as Silvester's, and involved no new principle of action. Indeed, in his more recent publications, Dr. Silvester had not limited his point of traction to any one part in particular of the forearm or arm. They were therefore of opinion that, in the great majority of cases, it is of comparatively little moment which method of manipulation is practised, provided the common principle on which both are founded be fairly carried out.—*British Medical Journal*, July 30, 1870.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

17. *Revaccination.*—The importance of revaccination has now become fully recognized by the highest authorities in the profession; but, unfortunately, it is not recognized by the public.

M. Depaul, on behalf of a committee of the Academy of Medicine, appointed to reply to a request made by the Minister of the Interior, for the opinion of that learned body, as to the value of revaccination, read the following, which was adopted:—

"The Academy of Medicine believes it to be useful to make public the following declaration, which it commends to the attention of the government and of the public.

"Vaccination is a preservative from smallpox.

"Nevertheless, after a certain period, revaccination is indispensable to assure complete immunity against contagion.

"Revaccination is absolutely exempt from danger. The Academy formall repudiates all that has been said and published to the contrary.

"Revaccination may be useful at all ages.

"It may be performed without inconvenience during the prevalence of an epidemic. Moreover, it is certain that, in small localities, in families, boarding-houses, or in collections of persons, it will effectually arrest a commencing epidemic.

"The existing epidemic in Paris and other places has furnished the most convincing proofs of the preservative power of revaccination.

"In different army corps, and especially in the Garde de Paris, in many public and private establishments, and in some of the municipal schools, variola has been arrested by revaccination. Finally, the latest statistics, particularly those from the civil hospitals of Paris, prove most positively that very few revaccinated persons are attacked with smallpox, and that of those who were none died.

"It is then of the utmost importance, for the interest of individuals and of the public, to encourage, by every possible means, the practice of revaccination."—*Révue de Thérapeutique Médico-Chirurgicale*, July 15, 1870.

The following statement from the *Lancet* (June 25, 1870) fully confirms the above view:—

"At the smallpox hospital (London) every nurse is revaccinated before entering on her duties; and, during thirty-four years, not one of these nurses has contracted smallpox. Some years ago, when the new smallpox hospital was built, and when many workmen were regularly employed there for several months after patients were received, the great majority of these workmen, who submitted to revaccination, entirely escaped smallpox, while two cases of the disease did occur among the few who were not revaccinated. Reasoning, not from theoretical considerations, but on the broad and firm ground afforded by large practical experience, Dr. Seaton advises that every child should be revaccinated at or about the age of puberty, or still earlier when smallpox is prevalent, or when the original vaccination was imperfect; and that the revaccination should be from arm to arm, and performed with the greatest possible care."

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18. *Anosmia.*—The *Archives Générales de Méd.* for April last contains some interesting researches by Dr. Notta, on the loss of the sense of smell. The author has collected twenty-four cases of this affection and from the data which the study of these cases furnishes it is evident that anosmia may result from very different causes.

It may be congenital, and due to an absence of the olfactory nerves.

It may be only a symptom of a more serious disease, as of a cerebral tumour, exostosis, or caries of the frontal bone, which produces the destruction, compression, or alteration of the first pair of nerves.

It may result from atrophy of the same nerves.

In other cases in which it constitutes the sole disease, Dr. N. proposes to term it essential, inasmuch as it occurs without appreciable cause.

It may be a sequel of falls on the head, complicated or not with fracture of the cranium, and then Dr. N. terms it traumatic.

It supervenes sometimes to a coryza either more or less prolonged or complicated with influenza, sometimes to repeated attacks of coryza.

Finally, it may occur from external causes independent of the condition of the nerves, as absence of the nose, contraction of the nasal fossæ, and polypus of the nose.

The loss of smell manifests itself differently, according to the cause which produces it. Sometimes, as in atrophy of the olfactory nerves, or as the sequela of repeated coryzas, it comes on slowly and becomes complete only after a lapse of years. Sometimes, when occasioned by an injury, or by a strong impression on the olfactory nerve, as in the case related by Graves, it may occur suddenly.

Physiologists inform us that the taste of certain articles may be perceived

independently of the sense of smell, such as sugar, salt, acid, sweet, bitter; on the contrary, the integrity of both senses is necessary to enable us to distinguish others, such as the flavour and the aroma of food and drinks. Most of the observations collected by Dr. N. confirm this, but there are many exceptions to this law and in which the sense of taste was preserved, while that of smell was completely abolished. Such cases have occurred under very different conditions—in one case after anosmia from a fall on the head, in another where it was consecutive to a coryza complicated with influenza, once after repeated coryzas, and finally, in a case of polypus of the nasal fossæ. Dr. N. does not seek to explain this anomaly, but is satisfied in pointing out what was well known before, that pathological facts and experimentation do not always lead to exactly the same results.

The duration of anosmia varies with the cause which produces it. When anosmia results from atrophy of olfactory nerves, or those nerves are destroyed by a tumour, it is incurable. But when it is caused by injury or by coryza, although it may be permanent, in numerous cases the sense has been recovered after a period varying from three weeks to seven months.

As to the treatment of this affection Dr. N. has not been able to throw any light on the subject. He has tried veratria, sternutatory powders, etc., without the least benefit; and where recovery has taken place it has been due to the powers of nature.

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19. *Mucous Disease.*—Dr. WALTER WHITEHEAD, of Manchester, read a paper on this disease, at the late meeting of the British Medical Association. Though noticed by some of the ancients, and described by a few more modern medical writers, it has received only occasional recognition in our best standard medical works.

This disease is characterized by the secretion of mucus of an abnormal composition on mucous surfaces, in which condition the mucus is prone to consolidate into masses, shreds, or tubular casts. These secretions form and exfoliate periodically, each exfoliation being critical and immediately followed by an amelioration of the symptoms which aggravate it up to this point. This critical period is accompanied by pains of a spasmodic character and of variable intensity. The subjective symptoms are those of a most distressing nervous nature. The disease, read in accordance with modern research, may be formulated as follows: 1. The proximate cause of the symptoms referable to this disease is the hypersecretion and accumulation of mucus on the free surface of the mucous membranes; such accumulations sheathe and prevent the healthy performance of the functions natural to the part, and thus induce immediate and remote results, the effects of such suppressed functions. 2. That this hypersecretion indicates a want of balance between nerve-force and germinal matter. 3. That the nerve-force is perverted by irritation. 4. That the exciting causes are numerous. 5. That it is a character of mucous secretions under the influence of irritation for its cell elements to increase, and its viscidity to diminish. 6. And that, in the disease in question, the prolific cell-formations become entangled in the albuminous fluid in which they are found, and present the membranous structures before referred to. The principal points in the treatment are as follows: 1. Discover and counteract any cause either in direct contact or in the immediate vicinity of the secreting surface which can be traced as a source of irritation. 2. Reinvigorate the strength, and allay the nervous irritability. 3. Remove the accumulated mucus. 4. Prevent, by topical application, its reformation. Such is a sketch of a disease, most serious in its import to the patient, and of far from unfrequent occurrence. True, the treatment is still in its tentative stage, but we are clearing the way for sounder views on the subject, by accurately laying down the causes and symptoms of a malady which one cannot doubt is constantly mistaken for one of the hydra forms of dyspepsia, and by the erroneous treatment resulting from this mistake, the first or curative stage of the disease is allowed to pass into the latter and more lethal forms.—*Lancet*, Aug. 20, 1870.

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20. *Stertor, its Pathology and Treatment.*—In a paper by Dr. R. L. BOWLES, communicated to the Royal Medical and Chirurgical Society by Mr. Cæsar

Hawkins, the definitions of the three forms of stertor (palatine, pharyngeal, and mucous stertor) treated of in vol. xlviii. of the *Medico-Chirurgical Transactions* are referred to, as well as a "laryngeal stertor" in chloroform poisoning spoken of by Professor Lister. Case 1 illustrates the cessation of stertor on placing the patient on her side, a gradual improvement subsequent to this, the return of stertor and impending death when she was placed on the opposite side, the instant relief on assuming her original position, and a return to consciousness coincident with the cessation of stertor. The causes of these conditions are discussed, and cases are given illustrating the necessity of always placing the paralyzed side downwards, and of never changing it to the opposite side; for the lung of the paralyzed side becomes loaded with a mucous fluid, which gravitates to the opposite lung whenever the patient is placed with the opposite (*i. e.*, sound) side downwards, and in its passage across the trachea the mucus becomes churned up into foam by the ingoing air, causing mucous stertor, great dyspnœa, and, if not removed, death. It is shown by experiment that these conditions may be induced and removed at will in apoplectic cases, and the practical applications of these principles are pointed out. Cases are related demonstrating the successful application of these principles in respect of the removal of stertor, as well as some cases of recovery from apoplexy after the stertor has been removed. Their application also to bronchitis, convulsions, epilepsy, hæmoptysis, drowning, chloroform poisoning, and all allied conditions, is pointed out, and the following conclusions are deduced: 1st. That a "laryngeal stertor" may be added to the three forms formerly defined. 2d. That the three forms of stertor which have the most important connection with the apoplectic state are the palatine, pharyngeal, and mucous stertor. 3d. That the three varieties, whatever their remote causes, are the immediate results of a local mechanical condition, which may always and at once be changed, to the great relief of the patients, and sometimes their permanent recovery. 4th. That it is necessary to keep the patient on one side, and that the paralyzed side should be downwards. 5th. That mucus and other fluids gravitate into and fill up the lower lung, and therefore if the sides be reversed, the mucus will find its way into the opposite lung. 6th. That the fluid crossing from the large bronchi of one lung to that of the other becomes churned into foam, and causes dangerous obstruction to the respiration. 7th. That the lung is not injured by remaining inactive, and filled with mucus for a long period. 8th. That these principles apply to all conditions in which mucus or fluid exists in either or both lungs, and also to all conditions allied to the apoplectic, whether there be fluid or not.—*Medical Times and Gaz.*, July 30, 1870.

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21. *Hæmophilia.*—Dr. Assmann, of Berlin, in his *Inaugural Dissertation*, 1869, gives an account of a number of individuals affected with irrepressible hemorrhage, who are known in popular language as *bleeders*. All belonged to the same family, the history of which Dr. A. was able to trace upwards through four consecutive generations. All of the patients, eight in number, were attacked at a somewhat early period of their infancy, and were of the male sex, all but one of mothers, of a lineage, who had never suffered from the disease. It would seem, then, that the predisposition to the form of hemorrhage referred to is transferred only to the male offspring. The repeated microscopical examinations made of the blood discharged in some of the cases referred to by Dr. A., give precisely the same results as was already announced by Grandidier—that is, about 1500 red corpuscles to every one of white.—*Centralblatt f. d. Med. Wissenschaften*, May, 1870. D. F. C.

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22. *Notes of Cases of Relapsing Fever.*—Dr. Claud Muirhead read a paper entitled as above before the Medico-Chirurgical Society of Edinburgh, and which was subsequently published in the *Edinburgh Medical Journal* for July, 1870. The author endeavours to show that contagion, rather than infection, is the means by which this disease is propagated; that the period of incubation extends from five to ten days; that the occupation of the persons seemed in no way to predispose individuals to be attacked by it; that, out of the forty cases which were admitted to the fever wards, 60 per cent. were under the age of 20;

that the number of males, as compared with females, was as four to one, and of this number about 77 per cent. were of Irish extraction. From careful and minute inquiries into the circumstances of the patients admitted into hospital with this disease, and from personal inspection and measurement of the cubic space of those houses where large numbers of them lived, combined with this important fact, that not one of these people was out of work when seized with this complaint, he felt himself warranted in concluding that *over-crowding* has quite as much to do with the generation of relapsing fever as *destitution*—infinitely more with its propagation; and, in those cases which have this year presented themselves at the Infirmary, much more to do with it as an exciting cause.

He then detailed the various symptoms presented. A decided rash was observed only in one case, resembling the eruption observed in measles, rather than that seen in typhus fever. But in many cases a very marked prominence and erection of the hair-follicles, especially over the abdomen, thorax, and thighs, was present, which continued until the sweating stage supervened. Sudamina were almost invariably met with in the second crisis, seldom or never with the first. The temperature was most carefully noted in every case, and charts were exhibited showing the rapid and sudden fluctuations observed at the critical periods. During the first paroxysm, it ranges from 102 deg., the lowest point observed, to 106.2 deg. Fah., the highest point noted; the evening temperature usually exceeding that of the morning, and sinking at the crises quite suddenly to two or three degrees below the standard of health. The lowest point noticed was 92 deg. Fah., which occurred at the crisis of the first relapse. In this case, the temperature fell no less than thirteen degrees in twenty-four hours.

The spleen was uniformly found to be enlarged; and in the only fatal case, which occurred in a man of 59, from sudden syncope, it was found stuffed with clots and coagula. The number of white blood-corpuscles was found to be largely in excess of what is observed in healthy blood; the serum appeared to be increased; the red corpuscles were altered in character, and adhered to each other in irregular masses; and little granules were observed floating in the serum. The spleen diminished very decidedly during the remission of the fever.

As to treatment, nothing was found to be of the slightest use in warding off the relapse. Quinia was tried both by Dr. Fraser and Dr. Muirhead, by the mouth and subcutaneously, in combination with iron and with nux vomica. In one case, seventy grains were given in divided doses, during the three days before the *relapse*, with no effect. In another case, 110 grains were administered during the four days previous to the expected *relapse*, by which cinchonism in all its forms was fairly induced, yet still the inevitable relapse made its appearance.—*British Medical Journal*, August 6, 1870.

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23. *Recurrent* (*Relapsing*) *Fever; Crisis and Delirium.*—Dr. FRANTZEL states (Virchow's *Archiv*, 1869) that, in 100 cases of recurrent fever which fell under his observation, in Fraube's Clinic, during the month of December, 1868, and up to February, 1869, in one case the disease terminated without crisis. In 4 cases the crises set in at some period during the interval between a regular and irregular day; so that it was very difficult to fix the exact time of its occurrence. In 75 cases the commencement of which was well marked by a decided chill; 47 times the crisis took place upon an irregular day (3–13), and 28 times upon a regular day (4–12): the most frequently (24 times) upon the 7th day; upon the 5th day 17 times, and upon the 6th day 16 times. The relapse in the 100 cases was not noticed 8 times, and in 27 instances the commencement of the recurrent attack could not be determined with certainty. Of the remaining 65 cases, in the greater number, namely 17, it occurred on the 15th day—then on the 12th and 13th days (respectively 10 and 9 times), and only 14 times on one of the critical days of Hippocrates. The crisis of the relapse period in 34 cases happened on an irregular day (3–9), reckoning from the commencement of the relapse; in 31 cases it occurred on regular days (2–6) most frequently on the 4th, 5th, and 3d days, namely in 24, 21, and 11 cases respectively.

As a basis of diagnosis for recurrent fever, may be taken, the rapid course of the crisis, which, unlike that in pneumonia and intermittent fever, is, in most instances, completed in from 6 to 8 hours, often even in 4; in conjunction with great reduction in the temperature of the surface, and in the frequency of the pulse. The lowest depression of the temperature was 5° R.; often it was 7° R. The lowest depression of the pulse was to 40 strokes in the minute; in one case it fell to only 80 strokes. The same depression of temperature and decreased frequency in the pulse, is observed during the period of relapse; usually the recurrence of the disease takes place before either the temperature or the pulse have resumed their normal grade.

Delirium, Dr. F. observed in his 100 cases, only 12 times during the exacerbation of the fever, and as many times also during or immediately after the period of crisis, and 3 times on the day subsequent to the decline of the fever. Neither the duration of the delirium, observed during the height of the fever, nor its intensity, was very considerable; it usually terminated as the febrile delirium of other diseases. Very different is the delirium which in relapsing fever sets in during or after a crisis has occurred. It either assumes then the character of a furious delirium tremens, or of a stiller form, with occasionally more or less indistinct muttering, prompted by some prominent idea; in some cases it is so slight as to be readily overlooked. Both these forms of post febrile delirium are to be viewed as the products of inanition, as is the case in the delirium which follows the close of other acute diseases, and which even in those who have not been guilty of an abuse of intoxicating drinks, is identical in form, so often, with delirium tremens. The suspended nutrition during the continuance of the fever, the critical discharges, and the defective action of the heart readily explain the occurrence of this form of delirium after relapsing fever. It is to be subdued by the same means as when it occurs in cases of debility from non-nutrition, etc., in other diseases (pneumonia, phthisis, etc.); the employment, namely, of opium, or morphia. Of the subcutaneous administration of the latter, Dr. F. speaks in terms of commendation.—*Centralblatt f. d. Medicins. Wissenschaft.*, May 7, 1870. D. F. C.

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24. *Pathology and Treatment of Scarlet Fever.*—Dr. Renfrew, of Glasgow, read a paper on this subject before the British Medical Association. He stated that scarlet fever is one of the zymotic diseases, which diseases are produced by an organized substance entering the body, which has the power of multiplying itself. In multiplying itself the blood is disordered, the nervous system deranged, the circulation quickened, and the secretions and excretions are changed. The poisons of the zymotic disease are not thrown off by the usual eliminating organs, but each poison is eliminated by a particular part of the body—smallpox by the skin, cowpox at the point of introduction, enteric fever by the lower part of the ileum, scarlet fever by the fauces and nose. When the poisons are thrown off there is always irritation and inflammation. As the poison of scarlet fever is thrown off by the fauces and nose, a large portion must pass into the stomach to be reabsorbed, intensifying and prolonging the disease. The remedies given in scarlet fever should be those that will destroy the poison; moderate and assist physiological changes. To accomplish these ends a mixture of chlorate of potash and tincture of steel is given, which contains chlorine, muriatic acid, iron, and chlorate of potash. The chlorine destroys the poison; the acid supplies acid to the blood, which is in a subacid condition; the iron improves the red disks, which are in a black and melanosed condition; the chlorate of potash supplies oxygen, to assist in oxidizing the disintegrated material that is floating in the blood.—*Lancet*, Aug. 20, 1870.

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25. *Delirium in Scarlet Fever.*—Dr. J. K. Spender observes (*British Medical Journal*, July 16, 1870) that there is no disease, as asserted by Heberden, in which the patient is more apt to be delirious, and with less danger, than in scarlet fever. Speaking broadly, the delirium which may happen in scarlet fever is of two distinct orders: (*a*) the delirium of adults, occurring early in the history of the disease, and usually an index of high fever; (*b*) the delirium of children, occurring later in the disease, and often arising out of some sudden

impairment or stoppage of renal function. Now, the delirium of the adult fever, always excepting that which is associated with the puerperal state, may be left pretty much alone, so far as concerns the meddlesomeness of starving, purgatives, and antimony. In the case of a married lady who, in the spring of 1864, caught scarlet fever from an only child whom she nursed with most affectionate zeal, active delirium lasted for nearly sixty hours. I supported her with frequent small injections of milk and beef-tea, each injection containing ten drops of laudanum. When the patient suddenly rallied from her delirium, she seemed, *quoad* fever, nearly well. If a similar case were to come under my care now, I should cautiously try the subcutaneous injection of morphia, or, at least, try to get the patient to take hydrate of chloral, dissolved in a large bulk of water.

The delirium of children is often of much more serious import. It may be epileptiform in type, and may merge into coma with very little warning. The narrative of a very apposite case will probably be better than any dry description. On March 9, 1865, I began attendance on a case of scarlet fever in a young lady, ten years of age. The case was moderately severe, but everything went on absolutely well until about the twenty-fourth day, when I first noticed that the urine was very red. Remember Dr. Andrew Anderson's axiom, that it is "of more importance to examine the urine than to feel the pulse of a convalescent from scarlet fever." During the week ending Saturday, April 8, the urine was very red every day, but it was not scanty, and the small amount of albumen in it was sufficiently accounted for by the presence of the blood. There were no symptoms of any other kind announcing danger; and unfortunately in those days one did not use the thermometer as a daily companion as we do now, or doubtless it would have told its tale. The weather was beautifully warm and fine, as it was, indeed, all through the month. Early on Sunday morning, April 9, I was suddenly called to see the child, and I found her insensible, and strongly convulsed; the breathing stertorous, and the extremities cold. I adopted, without a moment's delay, an old-fashioned treatment, but it was perfectly successful. The head was shaved, and a small blister placed on the scalp; as soon as enough consciousness returned to allow deglutition, half a drachm of compound scammony powder was given every six hours until ample purgation resulted; and a hot bath was administered in the evening. On Monday, April 10, consciousness had partly returned, and there had been no convulsions since the previous evening. Only milk food was allowed, with abundance of toast and water as a drink. Absolute rest in bed was enjoined for a week, when the urine had become normal in colour and specific gravity, and was quite free from albumen; occasional hot bran poultices were applied to the loins. There was no subsequent interruption to perfect recovery.

This was an instance of tubal nephritis, of a subacute type, but involving so much of the secreting tissue of the kidney as to hinder the passage of urinary excreta; hence the uræmia and its usual consequences. In the early management of these cases there is probably no better plan than to give that simple and powerful diuretic, copious draughts of cold water.

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26. *Clinical Study of the Disease of the Kidneys in Scarlet Fever.*—Dr. L. THOMAS (*Archiv der Heilkunde*, X.) from observations made by him in eighty cases of scarlatina, has arrived at the conclusion that catarrh of the tubuli uriniferi does not occur in the same proportion in cases of scarlet fever, as does catarrh of the respiratory tubes in cases of measles. The two diseases do not resemble each other either in the regular occurrence in both of the catarrhal symptoms, or in the period of their appearance. Of his 80 scarlet fever cases, in 25 the condition of the urine was watched from the very onset of the disease. In 7 of these there was no appearance of albumen, but only of cylindroid formations, whilst there was an entire absence of any of the symptoms of catarrhal affection of the uriniferous tubuli, among which Dr. T. reckons the presence of a large quantity of opaque and degenerated epithelial scales, of blood, and of tubal casts. He observed as an exceptional occurrence, only the presence of albuminuria, in the early period of the disease, and then but to a small extent, and soon disappearing. In proportionately many cases, however, there may be observed, soon after the attack of scarlet fever, a slimy cloudiness in the urine,

that had been previously clear, and free from albumen, with an increase of epithelial scales, and sooner or later, single, cylindroid, elongated formations, true cylindrical casts being seldom present. When at the commencement of scarlatina albumen is detected in the urine, the latter will be found to contain, at the same time, more or less, unbroken epithelial scales, epithelial and hyaline cylinders, as well as cylindroid formations, with or without blood corpuscules. In such cases there was observable a gradual increase of the symptoms of nephritic disease during the course of the scarlatina.

On the presence in the urine of the cylindroid bodies, Dr. T. places much importance, believing that the specific process of scarlatina is to a certain extent the cause of their formation. From his observations he is convinced that they originate in the tubuli uriniferi by a transudation resulting from a pathological change of the epithelium of their tubuli. He recognizes four varieties of cylindroid bodies. They are either exceedingly pellucid, for the most part of considerable length, often fractured or corrugated, and perhaps forked; or they are broad, tolerably regular in size and form, and laid in longitudinal plaits, so as to present a striped appearance, and often split or fringed at the ends. At the same time they are often indented obliquely and twisted, as it were, upon their axes. Other cylindroids are somewhat smaller in size, and nearly as broad as the ordinary hyaline cylinder, without longitudinal folds or fringed extremities, with oblique depressions and fractures. The third variety of cylindroids is not so broad as the usual small hyaline cylinder, it is without longitudinal folds and fringed extremities, or with oblique depressions, with few apparent fractures, having somewhat the appearance of a narrow ribbon. Their contours are perfectly parallel. The distinction between these and the true cylinder consists chiefly in their greater delicacy and more considerable length. The fourth variety of cylindroid formation is marked by extreme fineness, and its fibriform appearance, as though it were formed out of the third variety by dividing this lengthwise into minute fibrilli. Between the different varieties of cylindroid formations and the proper hyaline cylinder, Dr. T. has seen the occurrence of complete metamorphosis, frequently a cylindroid body assuming the form of the hyaline cylinder.—*Centralblatt f. d. Medicinisch. Wissenschaft.*, April 30. 1870. D. F. C.

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27. *Pyæmic Inflammation of the Joints as a Complication of Scarlet Fever.*—Dr. J. K. Spender, in an instructive article (*British Medical Journal*, July 16, 1870), remarks that "this complication has been noticed by nearly every systematic writer on scarlet fever, though by many in such an imperfect way as to suggest that its importance was scarcely recognized. But the fact of morbid anatomy is that not only may there be a transitory inflammation of synovial membrane, but an inflammation prolonged and intense, leading to suppuration in the interior of a joint, and ultimately to erosion and destruction of the cartilages. In short, the joint no longer exists as such for physiological purposes, and, under the most favourable circumstances, the patient recovers with dislocation or deformity. The wrist-joints seem particularly liable to disease, and next to them the knee-joint and the hip.

"In the summer of 1863 I attended a scrofulous child severely ill with scarlet fever; the pyrexia was mild, but the wrists and right hip-joint became early and gravely involved, and after a time I discovered complete and irreducible dislocation of the head of the femur on the ilium. Besides these serious external lesions, a pulmonary abscess formed, which in a little while became a gangrenous vomica, and caused the incessant expectoration of fetid puriform matter. The poor child lived on in emaciation and suffering for nearly five years, and was killed at last by exhaustion and anorexia.

"Very lately I have attended another case of scarlet fever in the person of a young woman, the daughter of a wealthy tradesman, and nursed with every comfort. The illness appeared to be proceeding in a most favourable way, when one morning I found that the temperature had risen a degree and a half since the preceding evening. The wrists were swollen; and here I may speak of the importance of distinguishing a *bonâ fide* joint-swelling from that cutaneous œdema which often accompanies specific fevers; further, the hands could not

be flexed without pain, and there was more general pyrexia. The treatment was so successful that in four days the local symptoms had entirely gone away, and the disease went on to a quick and happy termination.

"I have not noticed any special disturbance of the nervous system previous to the inflammation of the joints coming on. The thermometer affords a safe criterion of danger; it tells us that something approaches, the nature of which our sagacity must discover at the earliest possible time. * * * *

"The two trustworthy means in the treatment of the intercurrent affection of the joints in scarlet fever are: (*a*) the local application of heat and moisture, and (*b*) the administration of quinia. Foment the joint or joints with some hot medicated fluid; surround each with a layer of cotton wool; and place over this, again, a piece of oil-silk, which should be tied securely down above and below the joint, so as to protect it from all inquisitive draughts of cold air. Let this process be repeated morning and evening; in short, do just what you would do for a joint afflicted with acute rheumatism. Then, without discussing the large question whether quinia is a so-called "specific" in scarlet fever, or whether it may be safely trusted as the chief medicinal factor in pulling a patient through a dangerous adynamic stage, one thing appears certain—that this articular disease may with great advantage be treated with quinia, administered punctually and perseveringly. Here, again, we see a close analogy between scarlet fever and acute rheumatism. In the latter of the two cases which I have rehearsed, I began the use of quinia without delay; one grain was given in an ounce of acidulated water every three hours, night and day; and, the bowels having been previously moved with castor oil, no other medicine was prescribed. The fall of temperature was the first notable fact, and this was distinct and abrupt on the day after the treatment was begun; and, again, in twenty-four hours after this, the heat of body did not exceed the normal standard. Simultaneously, the development of local symptoms was arrested. A grain of quinia was administered every four hours for two days more, and so gradually left off. The convalescence was rapid and complete.

"Now, when we study the action of quinia in a case of this kind, we see how well it exemplifies the most recent ideas and facts of quinia-therapeia. The two new cardinal points about quinia are: (*a*) that it is an *antiseptic*, as shown by Dr. Binz in its power to prevent and arrest putrescence and fermentation; and (*b*) that it is an *antipyretic* or *antiphlogistic*, as demonstrated by Cohnheim in his experiments on the influence of quinia in inflammation of the mesentery of the frog. Further, the unquestionable power of quinia in acute rheumatism suggests the inquiry whether all inflammatory joint-affections may not be connected in a remote causal way with central nerve-lesion.

"If it be true that scarlet fever usually requires abundant support with a fair auxiliary amount of alcohol, this doctrine has special force when the joints are inflamed. Tissue-repair is gravely interfered with during the fevers of childhood; and when that interference is greatest, those structures suffer most in which growth is most active during health. It has been well said that "in the treatment of children's acute diseases the overwhelmingly important consideration, both with reference to present recovery and the avoidance of disastrous sequelæ, is *nutrition*."

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28. *Value of a Large Supply of Food in Nervous Disorders.*—Dr. G. F. BLANDFORD expresses (*Practitioner*, June, 1870) the belief that the unaided effects of food in the cure of nervous disorders have not had the trial they deserve.

"Certain chronic invalids," he says, "who have been brought under my notice have been lifted out of their former condition of 'nervousness' by a large increase in the quantity of their food. They have been people suffering from some general neurosis, taking the form of an insanity of a low and depressed character, or hypochondriasis, hysteria, alcoholism, or neuralgia, affections closely allied one to another, which may be witnessed in one form or other in individuals inheriting the same neurotic temperament. We may see different members of the same family displaying one insanity, another neuralgia, a third

hypochondriasis, while the conversion of one variety into another is a matter of every-day observation. * * * *

"If we inquire into the past history of nervous patients, and have the opportunity of learning accurately the facts thereof, we often find that for a considerable time the supply of daily food has been in no degree adequate to the necessities of the individual. Here is a common case. A man somewhat past middle life, but whose years do not imply senile decay, becomes unfit for business, fidgety, irritable, depressed, or even melancholic to the extent of insanity. We hear that he has been a hard-working man of business, always nervous, and very probably an indifferent sleeper. Being most heavy for sleep in the morning, he has risen at the latest moment, and, snatching a mouthful of breakfast, has hurried off to catch the train or omnibus, worried and anxious lest he fail to reach his office at the hour appointed. At lunch-time, if he be really hard-worked, he takes, not a meal, but a sandwich or biscuit, eaten perhaps standing, and often bolted in so great a hurry that digestion is difficult; he tells us that he dare not take more of a meal in the middle of the day, for he would be rendered unfit for the remainder of his work. In the evening, with what appetite he may, he eats his dinner, perhaps not before half past seven o'clock. Now, granting that his dinner is amply sufficient, such a man lives on one meal a day with very little besides. These are the persons who cannot go on without frequent holidays; nervous by inheritance, they break down because they are insufficiently fed. A holiday, during which they live better, builds them up again for a time, again to break down; often to fall into the condition above mentioned. Another class among whom we may frequently witness the same result and corresponding symptoms are the clergymen who for various reasons deny themselves an adequate amount of food. Either they fast rigidly, according to the rule and doctrine of the day, often allowing some hours to elapse before they break their fast, or they think that hearty eating is a snare and a carnal enjoyment, or they hold it sinful to eat their fill while others are in want. Whatever the cause, certain it is that many of the clergy break down in one or other of the forms of nervous disorder already enumerated, and an enlarged dietary is to them a necessity. A vast number of women, for one reason or other, take a very small supply of food: some think it unladylike to eat heartily; some eat on the sly, and when this is not practicable go without. Many from the lives they lead are doubtless correct in saying they cannot eat because they have no appetite. These stay in the house from month to month, or never venture beyond the door except in a carriage, because ladies do not walk in the streets. Others have misgivings on the score of their digestion. Like many women who lead sedentary lives, and habituate themselves to passing long periods without action of the bowels, they suffer greatly from constipation, which is looked upon as an indication and a warning that they ought not to eat. So they starve themselves, and fancy that if they abstain from food it is of little consequence whether they pass a motion once a week or once a fortnight."

In low nervous depression, or meloncholia, he particularly urges the importance of full feeding. "It is not necessary," he thinks, "to adhere to a sick diet—to beef-tea or boiled mutton, to essence of beef or Liebig's food, or any other of the concentrations so loudly recommended. The ordinary diet-list of the individual in health may be given without hesitation—fish, game, poultry, meat, puddings, and the rest. His appetite should be stimulated by variety, and his dishes may be savoury as well as wholesome; but the supply must be large. Such patients for the most part have accustomed themselves to eat during the day a scanty and insufficient amount, and we shall be told that latterly they have not taken half their usual quantity. It is not too much to say that they require double that which they have so long taken; and as we shall not be able to induce them to eat double the quantity at a single meal, it will be necessary to multiply the number of the meals. Instead of breakfast, lunch, and dinner, two of which have probably been but the semblance of a meal, we may institute a series of feedings after this kind: first, something may be given early in the morning, before the patient gets up, as rum and milk, egg and milk, chocolate or *café au lait*. This will be useful in allaying the feeling of extreme

depression and dispelling the gloomy and suicidal thoughts so constantly present on first waking. Next, breakfast may be taken, after dressing, and between it and the two o'clock lunch something else, as beef-tea or a sandwich. The dinner-hour should not be later than six, and at bedtime some light kind of supper should not be omitted. By this kind of division food may be administered six times in the day; and if the patient wakes in the night, and is restless and nervous, and disinclined to sleep again, food, taken even in small quantity, will often bring back sleep. With all this food may be given a reasonable amount of wine, or wine and stout, and this not by way of curing the disorder by stimulants, but because in conjunction with them less food appears to be required, and also because the addition of some wine or beer often renders the taking of the food more easy to the patient.

"Now the latter, and it may be the friends, will protest loudly that it is impossible to take this quantity: he will assign every conceivable reason for avoiding it; but if we are firm and insist, and, if necessary, cause him to be fed with a spoon, he will retain and thrive on it, and in a few weeks, or even days, will show very marked signs of its good effect. Patients have recovered under this treatment in a singularly rapid manner."

In alcoholism, both acute and chronic, especially the latter, the administration of nourishment in large quantity is highly necessary.

In hysteria and neuralgia he considers the same treatment required. Believing that neuralgia is one manifestation of impaired sensibility, as other neuroses may be displayed in mental symptoms, and in these alone, he thinks that the radical cure, and not the mere alleviation, is to be found in many cases in the supply of a large amount of nutriment to the nervous system.

In all chronic forms of neurosis, he considers alcoholic stimulants in any but the smallest quantity to be productive of evil rather than good. "In such disorders the fear, so commonly entertained both by doctors and patients, of 'overloading the stomach,' producing 'biliousness,' and the like, is in the majority of cases not realized when the plan of administering food in large quantity is tried."

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29. *Action of Hydrate of Chloral in Paralysis of the Insane and other forms of Insanity.*—The *Practitioner* for Aug. 1870, contains an interesting article on this subject by WM. MACLEOD, M.D., Dep. Inspector-General of Hospitals and Fleets. The following are his conclusions:—

1. That in paralysis of the insane, where the patients are destructive and violent, the judicious administration of chloral acts as an excellent hypnotic by night and soothing agent by day.

2. That under its action the patients have been free from destructive habits, and have gained in weight and strength.

3. That in one case as much as 2810 grains were taken during ninety-five days, the daily average taken being 30 grains. In a second case as much as 2435 grains were taken during 122 days, being at the rate of 22 grains daily; when the patient gave evidence of prostration. A third patient took 2380 grains during eighty days, the daily average being 28 grains with no bad symptoms. A fourth patient took 1362 grains during sixty-seven days, the daily average being 20 grains, with no bad symptoms. A fifth patient took 501 in twenty-four days, giving a daily average of 25 grains with no bad symptoms.

4. That under it the action of the bowels and bladder has improved.

5. That in no case has there been a refusal of food; on the contrary, the appetite of the paralytic patients increased.

6. That patients suffering from abnormal sensation derived much benefit from it.

7. That in patients subject to hallucinations of hearing, with suicidal tendencies, it has cut short the hallucinations.

8. That in patients liable to hallucinations of hearing, and under their influence becoming excited and noisy, it has produced calm.

9. That in patients with a propensity periodically to maim and hurt themselves, the desire has passed away under the influence of chloral.

10. That in patients who suffer incessantly from voices, it has been given with

partial benefit only. This refers to patients who were aware that the voices depended on morbid sensations.

12. In certain cases of melancholia benefit was derived from its administration, and convalescence advanced.

12. That in another case of melancholia with extreme depression, and the intellect being good, no permanent benefit was derived, except that under its administration the bloody exudation from the stomach completely disappeared.

13. That the greater the disorganization of the brain and cord (as judged by the symptoms, and especially by thermometrical observations) the sooner does the system come under chloral action.

30. *Treatment of Local Paralysis by Subcutaneous Injection of Strychnia.*—Mr. Barwell related to the Clinical Society of London (May 27) four additional cases illustrating his method of treating local paralysis by subcutaneous injection of concentrated solution of strychnia. Some of these cases were so managed as to serve experimental purposes. All solutions were of the strength of two grains to one hundred minims. Of these doses, beginning in the first case at one half-minim, and increasing in that and other cases to twelve half-minims, were employed. The first solutions had been neutralized by magnesia, in others the fluid was allowed to remain acid; in one case, injection of twelve half-minims was followed by general effects; in another, in which ten half-minims produced no general symptoms, the injection of seven half-minims into two different places was followed by slight twitching. From this Mr. Barwell argued that neither chloride of magnesium nor acid exercised any protective influence, but that the concentrated form of solution was the sole condition of safety, since the surface for absorption was so small. In all cases a certain amelioration, in one (besides that previously related) a very marked improvement, followed rapidly the use of the drug.—Dr. Buzzard mentioned the case of a patient in whom, a few days previously, the hypodermic injection of one-thirtieth of a grain of strychnia (*Pharm.* solution) had been followed by spasm of the jaws. —*British Medical Journal*, July 16, 1870.

31. *Treatment of Hæmoptysis.*—Dr. Dyce Duckworth discusses (*Practitioner*, Aug. 1870) the practice of treating hæmoptysis with styptic remedies and maintains that they may be dispensed with in favour of the following more simple plan.

"On the occurrence of continued hæmoptysis all other remedies should be withheld, and a simple astringent or slightly aperient medicine given. A good form is ♏x to ♏xv of dilute sulphuric acid, and, according to the state of the bowels, ʒss to ʒj of sulphate of magnesia may be given with this in some spearmint water every half-hour at first, and then less frequently. In addition to suitable posture (semi-erect), and other well-known favouring conditions, absolute silence should be enjoined, and the patient urged to refrain from coughing as much as possible. Should the bleeding continue, we should place a bladder of ice,[1] or a frozen compress,[2] between the scapulæ for a short time. This sometimes acts promptly, no doubt by reflex action, and probably this is the only means whereby a rapid change can be induced in the vascular walls. Should this fail, tinct. digitalis should be given (♏x or xv) with each dose of the astringent saline. In addition to this, if the case appears obstinate, a blister should be painted on the front of the chest, under the clavicle of the side believed to be affected.

"The ordinary habits and remedies may be resumed in a day or two after the cessation of the hemorrhage.

"The above description comprises the most beneficial method which I have witnessed, and, in setting it forth here, I need not say that there is no novelty in it. I do believe, however, that it deserves to be employed more frequently instead of the medication with opium and powerful astringents."

[1] Walshe, Diseases of the Lungs, 3d edit. p. 427.

[2] Niemeyer, Text-book of Practical Medicine, Amer. transl. vol. i. p. 152.

32. *Bromide of Potassium in Ague.*—Dr. MOXON extols (*British Med. Journ.*, June 11, 1870) the efficacy of bromide of potassium in ague, and states he has used it successfully in two cases where quinia had failed.

33. *Somnambulism cured by Bromide of Potassium.*—Two cases of this are recorded in the *Gaz. Med. Venete;* one by Dr. B. LEVI, the other by Dr. PELIZZO. The subject of the first case was a married woman æt. 24, for ten years had two or three times a week paroxysms of somnambulism. Dr. L. gave her 2 grammes of the bromide daily. Under this treatment the attacks gradually became less severe and less frequent, and at the time of the report she had not had one for two months.

The subject of the second was a girl æt. 8, who so soon as she fell asleep would start up from her bed walk about her room, &c. One gramme of the bromide of potassium taken morning and evening immediately arrested her nocturnal walking.—*L'Union Médicale*, July 28th, 1870.

34. *On the Use of Arsenic in Certain Painful Affections of the Stomach and Bowels.*—Dr. ARTHUR LEARED, in an article on this subject in the *Medical Times and Gazette* (July 23, 1870), states that pain after food is a very common symptom of dyspepsia, and in many cases seems to constitute the disease. "This pain usually yields to medical treatment and proper diet. But there is another kind of gastric pain far more severe than that which depends on food, and which does not yield to ordinary remedies. I have elsewhere pointed out how this pain may be removed, and the subject seems of sufficient importance for some further remarks.[1]

In case of the stomach, the pain we have to deal with happens to the same individual at one time when it is full, at another time when it is empty. But cases are met with in which the presence of food in the stomach is clearly the exciting cause. The typical case is that in which there is pain independent of the act of digestion. In this form it commonly seizes the patient in the middle of the night, and is not preceded or attended by any dyspeptic symptoms. The pain in these instances, which are fortunately not very common, is extremely severe, and attended with alarming prostration, lowering of the heart's action, pallor, and cold perspiration. Brandy and other stimulants give but little relief, and after a period of agony, sometimes extending to several hours, the attack ceases as suddenly as it had commenced.

Persons of middle age who have been exposed to some great cause of mental depression are peculiarly the subjects of this affection of the empty stomach. Dr. Budd has also noticed mental disturbance as an exciting cause of the disorder, and he adds that "it is closely allied to water-brash." In this statement I do not concur, for without entering into the vexed question of the nature of water-brash, it is sufficient to say that a particular remedy which cures the one proves injurious to the other.

Further experience has taught me that the bowels, and especially the small intestines, are subject to the same kind of pain. I do not include colic from the effects of lead; but many cases of so-called colic unaccountably occurring at longer or shorter intervals are from the same cause. For whether the pain attacks the stomach or the intestines, its nature is the same; it is essentially neuralgic. Upon this circumstance the success of the new treatment, which consists in the judicious exhibition of arsenic, depends. As may be inferred from what has been stated, the difficulty of diagnosis between the neuralgic and the more common forms of gastro-intestinal pain is sometimes very great. The best rule of practice is, when gastric or intestinal pain resists all ordinary treatment, and cannot be traced to gall-stones or any organic source, to test the matter by the effect or non-effect upon it of the remedy. By this method I have succeeded in effecting several cures. On the other hand, the arsenical treatment has failed in two cases in which, so far as the diagnosis could be es-

[1] "The successful Use of Arsenic in certain kinds of Gastric Pain." (Read at the meeting of the British Medical Association at Dublin, 1867.) *British Medical Journal*, November 23 and 30, 1867.

tablished, it ought to have succeeded. In both instances the patients were women past middle age, of stout habit, and too freely addicted to the use of alcoholic stimulants.

The curative effects of arsenic are most striking in severe cases of paroxysmal pain, and its success becomes doubtful in proportion as the case assimilates to those in which a lower degree of pain is traceable to the influence of food. In determining the question of the fitness of a case for the arsenical treatment certain circumstances may render essential aid. If the disease came on after some mental shock or severe trial, if the patient has previously unmistakably suffered from neuralgia, if he has lived in a marshy district, and especially if he has had hemicrania or ague, and if, in addition to the occurrence of one or more of these circumstances, the pain is paroxysmal, it will almost certainly yield to arsenic. But as already said, there are other cases suitable for the treatment, and they are the most numerous, in which the pain closely resembles that which attends dyspepsia. It is sometimes extremely difficult to make the diagnosis between neuralgic pain of the stomach or bowels and the pain caused by gallstones. But in my previous paper I have gone into details respecting this and other sources of error.

A few words will suffice as to the particular preparation of arsenic to be selected, and the extent to which it should be used. In most cases the liquor arsenicalis answers every purpose, but when the system is more than usually susceptible of the action of the mineral, the liquor sodæ arseniatis seems to irritate less, and in a few instances the acid solution of arsenic is to be preferred to either. Whatever preparation be selected it should always be taken immediately after food, and, notwithstanding that its beneficial action may have been previously observed, it will be proper to continue the medicine until its constitutional effects are well marked. Notwithstanding what has been said to the contrary, I do not believe that the proper use of arsenic as a medicine is followed by any injury to the system.

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35. *Therapeutics of Chronic Constipation.*—Dr. J. K. Spender, in an instructive paper on the treatment of constipation when it exists *per se* as a primary disorder of function, recommends the following judicious plan, which comprises four factors: (*a.*) Minute and frequent doses of watery extract of aloes, not exceeding 1 gr.—very rarely, of extract of colocynth. (*b.*) A dose of sulphate of iron, gr. iss to gr. ij, *always combined* with the aperient. (*c.*) Regulation of the diet. (*d.*) Constitutional exercise. He does not believe that any other drug can supply the place of the sulphate of iron, though belladonna may be occasionally useful as an auxiliary. At first he gives a pill, composed as above, three times a day, immediately after the principal meals, and gradually reduces the number and frequency of the pills as the intestinal functions are restored. The action is slow, requiring two, or perhaps three, days, but *nothing approaching to purgation* ought ever to be permitted. As a substitute in certain cases, Mist. ferri co., with dec. aloës co., in corresponding doses, may be adopted.—*Med. Times and Gaz.*, Feb. 19, 1870.

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36. *Infusion of Mustard in Obstinate Hiccup.*—Dr. Jauariz reports (*Siglio Medico*) a curious case of obstinate hiccup cured by the internal administration of an infusion of mustard. A Spanish physician was seized, while convalescing from a gastric fever, with obstinate hiccup, which gave him no rest. For sixty hours, the patient was treated with antispasmodics, narcotics, ipecacuanha, and revulsives, without effect. He then besought his wife to give him some linseed tea—she by mistake gave him an infusion of mustard. Of this the patient drank a cupful at once, and was surprised to find his hiccup cease, not to return. This physician profited by the lucky mistake of his wife, and subsequently treated with success many obstinate cases of hiccup. The dose which he employed was one teaspoonful to four ounces of boiling water. The author of the article in the *Siglio* had also successfully employed the infusion of mustard in three cases of obstinate hiccup which had already lasted many days. In the *Gazette Médico-Chirurgicale de Toulouse*, a case is related of a governess who had been treated for hiccup during twenty days with every variety of antispasmodic—

ether, belladonna, valerian, etc.; laudanum was the only thing which gave any relief, and enabled the patient to retain some nourishment. At last, recourse was had to the infusion of mustard: one teaspoonful of flour of mustard was infused for twenty minutes in about half a pint (250 grammes) of boiling water, it was then filtered, and given to the patient, who swallowed it at one draught. The troublesome affection ceased at once and never returned. Cases of obstinate hiccup are sufficiently frequent and intractable to make practitioners grateful to us for pointing out to them a remedy so efficacious and so accessible as infusion of mustard seems to be.—*Révue de Thérapeutique Médico-Chirurgicale*, 1st June, 1870.

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37. *Cannabis Indica in Menorrhagia and Dysmenorrhœa.*—Dr. A. SILVER extols (*Med. Times and Gaz.*, July 16, 1870) the powers of Indian hemp in menorrhagia and in dysmenorrhœa, and relates several cases illustrative of its efficacy. He says it is efficacious, not only in merely functional menorrhagia, "but even in those instances where there is local mischief in the shape of tumours or malignant disease, the hemp still asserts its influence over the sanguineous discharge, but only for a time. Upon the whole, therefore, if the hemp given repeatedly, each time arresting the discharge and relieving pain, but when omitted these again recur, there is just cause to suspect the existence of uterine mischief other than merely functional disturbance. Thus, in a case of uterine fibroid tumour of great size, rising nearly to the umbilicus, and, of course, elongating the body of the uterus, the periodic flow was greatly increased, and the patient was consequently much weakened; even here the hemp proved satisfactory in arresting the discharge, but not in preventing its recurrence. In another instance, where the discharge proved intractable, a small polypoid growth was discovered, and removed, to the relief of the patient."

In painful menstruation, not being mechanical, he regards it as most useful, and states that Dr. Hunt has given it in one hundred cases, and had never known it to fail after the third dose in relieving pain and discomfort. Dr. S. usually prescribes the tincture in twenty minim doses, and says it is best given with aromatic spirit of ammonia.

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38. *Rhinoscleroma.*—HEBRA states (*Wien. Med. Wochenschr.* 1870) that in four men and five females he had observed a very peculiar sclerosis of the skin of the nose, the forehead, the cheeks, and upper lips, in the form of a strictly circumscribed deciduous projection, having a smooth surface, and either corresponding in colour with the normal hue of the surrounding parts, or having a darker shade, a brownish-red tint, and of a density often equal almost to that of ivory. These prominences are most commonly free from pain; when sensible upon pressure they are very rapid in their development. They are never accompanied by any changes in the neighbouring parts referable to inflammation. A microscopic examination shows that in the morbid growths referred to (COHN), the epidermis presents no change. The papillary body and adjoining layer of the corium are greatly thickened within strictly circumscribed limits. Throughout the diseased portions there exist, imbedded in the meshes of the cellular tissue, small nucleated cells; these occur more especially around the bloodvessels. Along with these there may exist also in the deeper-seated layer of the corium, a similar condition of things, or even when the upper layer is not implicated or the subjacent fat tissue. Of the sebaceous follicles and perspiratory exhalants, within the diseased parts, no trace remains. The bulbs of the hair remain unchanged. As the cells above described as occurring in cases of scleroma have always a recent appearance, and undergo no retrogression, M. Hebra believes that the next change would be into *gliosarcoma*. He further remarks that when the scleroma, in the cases described, was destroyed by the application of caustic potash, after the lapse of six months, there was no recurrence of the disease. From none of the other therapeutic measures resorted to was any benefit derived.—*Centralblatt f. d. Medicins. Wissenschaft.*, April, 1870.

In the *Allgem. Wien. Med. Zeitung.* 1870, occurs an article from Dr. WEIN-

LECHNER on the same affection as that described by HEBRA. It presents, however, no additional facts of any importance.—Vide *Centralblatt* for May 7, 1870. D. F. C.

39. *On the Anatomy of a Case of Molluscum Fibrosum.*—Dr. C. HILTON FAGGE read a paper before the Royal Medical and Chirurgical Society, based on the results of the dissection of portions of the integument of a woman, aged forty, affected with molluscum fibrosum, who died in Guy's Hospital of another disease. The author examined some of the most minute tumours—scarcely bigger than pin's heads—by dissecting them out of the cutis, and submitting them to a low power of the microscope. An independent examination of some of the larger growths was made by his colleague, Mr. H. S. Howse. These were hardened in chromic acid, and fine sections of them were viewed with higher objectives.

The conclusions arrived at by the author and Mr. Howse were as follows: 1. Each tumour is originally developed round a hair-follicle, inclosing at the same time the sebaceous glands belonging to the follicle. 2. The smallest tumours consist of two distinct elements; a central glandular body, itself surrounding a hair; and a peripheral mass of very fine connective tissue, containing numerous minute oval nuclei. 3. The glandular body is a sebaceous gland, enlarged by the separation of its sacculi from one another, and perhaps also by the actual multiplication and increase in size of the sacculi themselves. 4. The peripheral mass of nucleated connective tissue is developed from the two external layers of the dermal coat of the hair-follicle and sebaceous glands. The structure of one of the smallest tumours was shown in the microscopical drawing which accompanied the paper. The centre of the tumour was occupied by a hair, surrounded by a beautifully branching glandular body, itself inclosed in a translucent fibrous mass.

A coloured drawing illustrated the appearance of the under surface of a portion of integument affected with molluscum, when it has been dissected so as to expose the numerous soft red tumors scattered throughout its substance.

The latter part of the paper was devoted to an examination of the literature of molluscum, and of the views propounded by previous writers. The only observations irreconcilable with the author's were those published in the year 1858 be Förster.

In conclusion, it was maintained that the author's investigations rendered the name "molluscum fibrosum" a more appropriate one for the disease under consideration than that of "fibroma molluscum" used by Virchow and other German writers.—*Brit. Med. Journ.*, July 30, 1870.

40. *Stenosis Arteriæ Pulmonalis.*—Dr. NOBILING, in the *Bair. Aerztl. Intell. Blatt*, 1869, states that in a child which was completely cyanotic, and died on the fourth day after birth, the heart was found to be double its normal size from concentric hypertrophy of the right ventricle. The cause of this inordinate enlargement was found to be a very high degree of stenosis of the mouth of the pulmonary artery, with considerable thickening and rigidity of the semilunar valves. Both the foramen ovale and the septum ventriculorum were open. The ventricles were unusually light-coloured towards the apex of the heart.—*Centralblatt f. d. Med. Wissensch.*, March 26, 1870. D. F. C.

41. *Case of Essential Dropsy.*—Dr. A. WERNICK relates (*Deutches Arch. fur Klin. Med.*, 1870) the case of an unmarried female 22 years old who, during convalescence from a febrile disease of some weeks' duration, became affected with œdema of the lower extremities, and shortly afterwards with swelling of the abdomen and difficulty of respiration. After her admission into the hospital the existence of hydrothorax was made out. No disease of the heart could be detected—the urine was without a trace of albumen, and by the aid of the microscope nothing abnormal could be detected in the blood. There was increased sensibility of the skin throughout almost every portion of the body, while its temperature was reduced to almost its lowest degree. The thorax was twice punctured to allow of the discharge of the effused fluid it contained, which

gave to the patient great relief. Soon, however, intense cyanosis and somnolence set in, and were quickly followed by death. Upon a *post-mortem* examination, no trace of any lesion adequate to the production of the dropsical effusion could be detected, hence Dr. W. concludes that the case is to be viewed as one of those rare forms of dropsy which is dependent solely upon a disturbance in the function—a decreased activity—of the cutaneous exhalants, and that confessedly, in the treatment of the case described by him, a well-known variety of this form of dropsy had been entirely overlooked. D. F. C.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

42. *Results of the Greater Amputations.*—Mr. SPENCE read before the Medico-Chirurgical Society, Edinburgh (July 6, 1870) an interesting communication on this subject. It was founded on the results of his own practice only, and included 403 cases. The paper was illustrated by very extensive tables, showing the causes which rendered the amputations necessary, and the results of each. The tables are far too long to be reproduced here. The first one gives the general results as follows:—

	Total.	Recovered.	Died.
Hip	9	3	6
Thigh	155	100	55
Knee	1	0	1
Leg	53	37	16
Ankle	82	76	6
Total lower extremity	300	216	84
Shoulder	23	17	6
Arm	33	21	12
Forearm	43	35	8
Wrist	4	4	0
Total upper	103	77	26
Grand total	403	293	110

After some general remarks on the dangers of amputation, Mr. Spence pointed out how in many cases the *circumstances* of the case, rather than the operation itself, are the causes of death. The most familiar example of what he meant was to be found in strangulated hernia, in which the operation itself was nothing, but the delay of the operation often made it fatal. Hence the importance, in all statistics of amputations, in mentioning the disease or injury for which the operation was performed. He then analyzed the causes of death in primary amputations, under different heads: 1. Additional injuries; 2. Shock; 3. Loss of blood; 4. Gangrene of stump; 5. Pyæmia. He then illustrated the difference in result of operation for accident and operation for disease, by the results of his own amputations of the leg. Of thirty-one cases for accident, sixteen recovered, fifteen died; of twenty-two cases for disease, twenty-one recovered, one died. Of seventy-nine amputations of the thigh for disease, sixty-seven recovered, and only twelve died. And his impression was, that the most of those that died were cases of amputation on account of gelatinous disease of the knee-joint. He observed that amputations for necrosis were much more fatal than those for joint-diseases, and advised delay in cases of acute necrosis. On the mode of operating, Mr. Spence observed that, while for disease of joints he advised the operation by a long anterior flap, with a little muscle to cover the end of the bone, with a short posterior one, he advised, in cases of accident or malignant disease, the use of two equal flaps, or

of the modified circular, as in such cases your object was to save as much of the length of the limb as possible, and also remove as much muscle as possible. —*British Med. Journ.*, Aug. 6, 1870.

43. *Position as a Means of Arresting Traumatic Hemorrhage.*—Mr. Geo. Y. Heath, in his interesting address in Surgery at the late meeting of the British Medical Association, made the following instructive remarks on this subject:—

"In carefully adjusted position we have a ready means of modifying the force of the arterial stream. The mere elevation of a limb exercises considerable influence over its circulation; but other positions, such as extreme extension and flexion, either with or without elevation, may be so employed as to keep the blood stream under almost perfect control.

"A young woman was admitted into University College Hospital, a good many years ago now, whilst I held the office of House-Surgeon under Liston in that institution, with a wound of the superficialis volæ artery, inflicted by the point of an oyster-knife; the injury had been done some days before her admission; repeated attacks of bleeding had occurred, and vain attempts had been made to secure the ends of the vessel in the wound; the hand was swollen and inflamed, and the wound in a sloughy condition. I had her arm raised very high upon pillows, and stretched out in the extended position, by bandages to the hand, whilst irrigation with cold water was employed to the wound, which was uncovered. No bleeding recurred. At the time, I believed that the elevation of the limb was the sole cause of the arrest of bleeding; but I am now inclined to think that the extended position of the arm was also not without some effect.

"My attention was first drawn to the effect of this position two years ago, by one of the surgeons of the Lariboisière, who informed me that he had ascertained by experiment that by extreme extension the force of the arterial circulation might be materially modified. I have myself experimented upon this position, and find that, in thin persons particularly, extreme extension, or, as it may be shortly called, 'over-extension' of the elbow-joint, enfeebles the pulse at the wrist, and where the elbow-joint admits of being so extended that the end of the humerus presses forwards against the artery, the pulse is entirely extinguished. Abduction of the shoulder-joint and over-extension of the wrist aid this effect. In the lower extremity, if a hard cushion be placed under the buttock, and the hip and the knee-joints over-extended, the pulse at the ankle is also very greatly enfeebled. I have not employed this method in cases of actual bleeding; but although the position might be difficult to enforce, believe that it would be useful, at least as an auxiliary measure.

"The power exerted by the bent position of a limb, or over-flexion, upon the blood-stream, first came under my notice a good many years ago in this way. In the year 1848 or 1849, a travelling jeweller, who had a booth at one of the periodical fairs in this town, having occasion to get up in the night, struck his leg, whilst walking across his booth, against the sharp projecting end of the broken top of one of his jewel cases. He fell to the ground in a fainting state; and Mr. Featherstonhaugh, a surgeon here, was hurriedly sent for to see him. Mr. Featherstonhaugh found a punctured wound high up in the leg, passing deeply between the bones, and bleeding furiously; being alone in the middle of the night, and without instruments, no operation could be attempted; and he endeavoured to stay the bleeding by plugging. This was utterly impossible; in spite of his efforts, the blood continued to well up from the wound like water from a spring. Mr. Featherstonhaugh was at a loss for a time what course to pursue, when it occurred to him to bend the leg forcibly upon the thigh; the flow of blood was at once slacked, and pressure by pads now easily arrested the hemorrhage. The bent position was not kept up in this case, and bleeding recurred—on account of which I saw the man with Mr. Featherstonhaugh; and ultimately the anterior tibial was ligatured at the wound, and a piece of broken glass removed from the interosseous membrane. This case was reported in the *Lancet* at the time, and was quoted by Mr. Guthrie in his lectures at the College of Surgeons, as a good example of his own principle of

treating wounded arteries. The point in the case, however, which I now wish to notice, is the marvellous effect produced by bending the knee. This effect was never forgotten by me; and since that time, but more particularly of late years, I have frequently had recourse to this expedient to stay arterial bleeding, sometimes temporarily, often permanently. For some time I hesitated to trust to this proceeding alone. Latterly, however, I have frequently done so, and have treated wounds of all the vessels of the forearm; of the radial, in the middle of its course, and near its termination, between the metacarpal bone of the thumb and that of the forefinger; of the ulnar and its upper third; of the superficialis volæ and the palmar arch, by flexion of the elbow. I have not had such frequent opportunities of testing this means in the lower extremity, but have employed it occasionally to restrain secondary bleeding from stumps, with marked success, and also in a case of malignant disease in the lower third of the tibia, where profuse hemorrhage followed an exploratory incision.

"A French surgeon has recently impugned the efficacy of flexion as a blood-stopping means. I have therefore had some experiments done at the Infirmary here, with a view to test the effect of this position upon the pulse at the wrist, and at the ankle.

"These experiments were done at different times, and on several different individuals, by Dr. Page, our excellent house-surgeon; and by myself separately, with the assistance of Mr. Kaye, my dresser, with the following results:—

"A. *Upper Extremity.*—1. Forearm bent on arm by muscular action of the individual experimented on. In persons with considerable muscular development, pulse at the wrist entirely stopped.

"2. Forearm bent on arm simply, with the hand flat on the shoulder. Pulse weak and indistinct, sometimes, but rarely, quite stopped.

"3. Forearm bent on arm, with hand pronated. Pulse more weakened, sometimes stopped.

"4. Forearm bent on arm, hand pronated and extended. Pulse usually quite stopped.

"5. Forearm bent on arm, hand pronated, and bent at wrist. Pulse either almost imperceptible or quite stopped.

"6. Forearm bent on arm, with a roll of lint or cambric pocket-handkerchief rolled up and laid in bend of elbow. Pulse always entirely stopped.

"B. *Lower Extremity.*—1. Leg flexed on thigh. Pulse in posterior tibial artery much weakened.

"2. Leg flexed on thigh, and thigh on abdomen. Pulse in posterior tibial stopped altogether almost invariably.

"3. Leg flexed on thigh, with a roll of lint or cambric pocket-handkerchief laid in the bend of the knee. Pulse stopped in some cases, not always; but with flexion of thigh on abdomen also, pulse invariably stopped.

"4. Thigh flexed on abdomen, the trunk bent forward. Pulse materially weakened.

"From these experiments, as well as from those cases of actual bleeding in which this method has been used, it may be fairly inferred that we possess, in overflexion, a blood-controlling agent of considerable power, which can be applied on the shortest notice; which requires neither instruments nor apparatus other than can be obtained in the poorest cottage; which can be put in force by any one possessing neither special knowledge nor operative skill; which is not dangerous in itself; and which may be relied upon with certainty to restrain bleeding, at least temporarily, even when it may fail permanently to arrest it."—*British Med. Journ.*, Aug. 13, 1870.

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44. *On the Removal of Subcutaneous Tumours without Hemorrhage or Loss of Skin.*—Mr. HENRY LEE read a paper on the above subject before the Royal Medical and Chirurgical Society. He stated that he had been in the habit for some time of removing small tumours by India-rubber thread. He found that the pressure of the thread would rapidly, by a process of linear mortification or of ulceration, cut through the base of a tumour. This principle might be

applied to the surface as well as to the base of any growth that might have to be removed, and was peculiarly applicable to vascular tumours of the neck and face. A crucial line of ulceration was first made through the skin by the continued pressure of India-rubber bands or thread. Needles were then inserted below the flaps of skin thus produced, and the skin was dissected back, from the centre towards the circumference, by the pressure of the India-rubber. The base of the tumour was then cut through in the same way, so that the whole of it was enucleated without the aid of the knife. The process went on much more rapidly than might be expected, and it was comparatively safe, as the India-rubber thread always, on account of its elasticity, remained tight. The circulation could not consequently be re-established in a part once strangulated, and so far the danger of blood-poisoning was avoided.—*British Med. Journal*, July 23, 1870.

45. *Method of treating Large Granulating Surfaces by transplanting Epidermis.*—This method, proposed by M. Guyon, seems deserving of trial. The treatment was suggested to him by the consideration of the fact that islets of epidermis existing in a large granulating wound greatly expedite the cicatrization of it, as they form centres from which the formation of new tissue spreads, as well as from the borders of the surface. Two opinions are held by pathologists as to the spontaneous origin of such islets observed occasionally in extensive wounds; that there must be pre-existing in the granulating surface some part of the rete Malpighi, or surface of the true skin; secondly, that this condition is not absolutely necessary. M. Guyon states, that having had his attention drawn to the subject by the rapid healing of a wound in which islets occurred, he determined to attempt to produce similar islets in a wound of the forearm in which the skin had sloughed to a great extent. When the surface had become covered with granulations, and its border showed that cicatrization was commencing, a month having passed after the receipt of the injury, he raised, with the point of a lancet, from the opposite limb, two minute flaps of epidermis, as far as possible avoiding a wound of the true skin. The detachment of the flaps left only a florid spot of skin exposed. He placed them on the centre of the wound, at a little distance from each other, with their deep surface applied to the granulations, and fixed them by two straps of plaster which formed part of the dressing. On the next day they retained their place, in spite of profuse suppuration, appearing a little swollen and whiter than when transplanted. On the third day, they being still in place, M. Guyon raised a larger piece of epidermis, about one-tenth of an inch square, and placed it on the wound, some distance from them. On the next day the three flaps were adherent to the surface, and could be rubbed without detaching them.

Two days afterwards the first pieces looked more pale and thinner, and appeared to be extending at their borders; next day they had united, and formed a pale white patch with epidermis evidently forming around it. The third flap was now firmly adherent, and was surrounded by a little pale band; during the following days this band, and that around the spot formed by the two first pieces, extended more and more. In a fortnight all three spots were united, and the islet so formed continued to spread rapidly.

A second experiment, made on a wound the border of which had not shown signs of cicatrization, failed, the grafts of epidermis falling off after being some days slightly adherent.—*Dub. Journ. of Med. Sci.*, Aug. 1870, from *Gaz. des Hôpitaux*, Jan. 11, 1870.

46. *Stricture of the Œsophagus successfully treated by Dilatation.*—Dr. Morell-Mackenzie read before the Clinical Society an account of two cases of stricture of the œsophagus. The first case was that of a man, aged 58, who had experienced difficulty of swallowing for four or five years. He had suffered no pain; but the difficulty had gradually increased, so that at the time of application he was quite unable to do more than chew meat, swallowing the juice and rejecting the solid residue. Liquids could only be taken in sips. He weighed seven stone twelve pounds. The patient had never had syphilis. Bougies of increasing sizes were passed for twelve months, at the end of which

time he was able to eat meat by cutting it small. He is now able to eat any sort of food without any sense of obstruction, and his weight has increased nearly two stone and a half since he was first seen. The second case was to illustrate the advantage of an "œsophageal dilator" invented by the author. The instrument consisted of a hollow gum-elastic tube, the end of which was made of hard India-rubber, with four slits in the sides. Inside the whole length of the tube was a piece of wire with a bolt at the lower end, and when the bougie had been passed through the stricture the bolt was pushed down so that the India-rubber portion was dilated four sizes larger. The advantages were: (1) great gain of time, an important feature in cases where the prominent symptom is inanition; (2) the greater ease and certainty with which strictures can be dilated than with conical bougies. The patient had dysphagia caused by swallowing soap lees eleven years previously. At first a No. 5 bougie could be passed with difficulty through a very tight stricture opposite the sternal notch. At the end of three months a No. 11 was easily introduced. The patient then discontinued treatment for a year. The dilator was then used, and in a month a No. 16 could be passed with ease. Dr. Mackenzie recommended this instrument for non-malignant and traumatic strictures.—*Med. Times and Gaz.*, July 16th, 1870.

47. *Treatment of Enlarged Lymphatic Glands.*—Mr. FURNEAUX JORDAN, in a paper read before the British Medical Association, remarked that "the numerous modes of treating enlarged glands are remarkable chiefly for their want of success. The method I now propose, if carefully carried out, I have never known to fail. The ordinary enlargement of lymphatic glands is due to inflammatory action. By far the most efficient remedy in inflammation of any organ is counter-irritation, if only it be established in the proper locality, and to a proper extent. A blister will cure bursitis when nothing else will, and inflammation of a bursa does not differ from other inflammations. In enlarged glands, as in abscess, carbuncle, boils, and erysipelas, the best locality for counter-irritation is not over the inflammation, but around it or adjacent to it—in short, in an independent vascular region. In enlarged cervical glands, a large patch of iodine irritation at the back of the neck, which may be prolonged below the glands, will certainly prove successful in a short time. A shot bag, as heavy as can be tolerated, should be applied over the glands at intervals during the day, the patient being for this purpose in the horizontal posture. I might cite many cases. One, a representative one, under the care of an impartial and competent observer, will suffice. Dr. Hickinbotham, of Nechells, had under his care a man with enlarged cervical glands, which for three years resisted the careful trial of every known treatment. Dr. Hickinbotham then, adopting my views, established a patch of counter-irritation at the back of the neck. In three weeks all enlargement had disappeared. One of the advantages of counter-irritation is this—it gives certain and immediate relief to pain. The persistent tormenting pain of a carbuncle, for instance, may be instantly relieved by a ring of counter-irritation with its transitory smarting."—*Med. Times and Gaz.*, Aug. 20, 1870.

48. *Case of Necrosis of the Femur without External Inflammation.*—Mr. PAGET read before the Clinical Society of London the history of a case in which an oval swelling six inches in length had appeared in the shaft of the girl's femur, firm and somewhat tender on pressure, but without heat or any affection of the textures covering it. Treatment with rest and iodide of potassium having produced little or no alteration in three months, an incision was made over the swelling, and the periosteum, much thickened, divided, exposing a cavity containing a thin rough sequestrum derived apparently not from the outermost layers of the femur, but from layers just within them. The central point of interest in the case was the fact of necrosis leading to separation of bone being unattended with inflammation of any of the textures external to the periosteum, or with more than a scarcely discernible amount of suppuration around the sequestrum. Mr. Paget added a suggestion that certain loose cartilages in joints may be really due to a necrosis following an injury, death and separation

of a bit of bone occurring without inflammation of adjacent textures.—*British Medical Journal*, July 16, 1870.

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49. *Removal of a Polypus of the Larynx by Ablation of the Thyroid Cartilage.*—M. Krishaber read a very interesting case of this description to the Paris Société de Chirurgie, and which was subsequently reported favourably upon by M. Guyon. The following are the author's conclusions: 1. There are cases of polypus of the larynx, the destruction and extirpation of which cannot be accomplished by the natural passages. In such cases we can open the larynx directly. 2. The aperture may be made according to the nature and position of the tumour either in the membranes or the cartilages. 3. When the polypus is implanted in Morgagni's ventricle, the incision should be made in the thyroid cartilage. The space thus obtainable is sufficient for the extraction of even a large polypus, without division of the thyro-hyoidean or thyro-cricoidean membranes. The section of the cartilage may be so made as to avoid injury to the vocal cords, and so leave the voice intact. The presumed ossification need not present a contra-indication, although it delays the healing. 4. Laryngotomy, consisting in dividing *en masse* the whole body of the larynx, membranes, and cartilages, should be rejected. When, by means of the laryngoscope, we have ascertained the exact site of the tumour, it suffices to open the larynx at such site. 5. Of all procedures hitherto employed for the extinction of polypi, the operation here described is that in which incision of the larynx is least extensive. It is to this I attribute the recovery of my patients. I propose to name this operation "Restricted Thyroideal Laryngotomy."—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Revue Photographique des Hôp. de Paris*, Sept. 1869.

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50. *New Operation for Bony Anchylosis of the Hip-Joint.*—Mr. Adams, Surgeon to the Orthopædic and Great Northern Hospitals, read a paper before the British Medical Association at its recent meeting, in which, after some general observations on true and false, or bony and ligamentous anchylosis, and the relative frequency and rapidity with which these conditions are produced after various forms of disease, he referred to those cases of bony anchylosis of the hip-joint which called for surgical interference in consequence of the anchylosis having been allowed to take place, with the limb in a deformed position. The inconveniences arising from bony anchylosis of the hip-joint depend upon the extent and direction to which the limb may be contracted and drawn into a deformed position. In females, when the thigh is flexed and adducted, so that the knee is drawn across the opposite thigh, the orifice of the vagina is often seriously interfered with, so that urination is performed with difficulty, and even a catheter cannot be passed, as occurred in the case recorded by Dr. Sayre; the parts, moreover, were kept in a constant state of excoriation. The author then referred to the various operations which have been proposed and adopted for bony anchylosis of the hip-joint, with deformity, such as Rhea Barton's operation, and also that proposed by Louis Sayre, of New York, which he had performed in two cases. In all these operations it was necessary to make a large external incision, so as to admit of the use either of an ordinary saw or of the chain saw; and, although in three cases recorded the result had been successful, so far as rectification of the deformity was concerned, the possibility of the restoration of motion by the formation of a false joint was not clearly established. The author, therefore, advised that the object should be limited to the rectification of the deformity, and obtaining bony anchylosis, with the limb in a straight position. This he proposed to accomplish by a subcutaneous division of the neck of the thigh-bone within the capsular ligament, using only a tenotomy knife and a very small saw, three-eighths of an inch in width, with one inch and a half cutting edge, at the end of a small shank three inches in length. A case in which he had successfully performed this operation was brought before the meeting, and no inflammation whatever had followed the operation. The author therefore felt justified in comparing this operation of the subcutaneous division of bone—or subcutaneous osteotomy—with the subcutaneous division of tendons. The case in which Mr. Adams

performed the operation was one for bony anchylosis of the right hip-joint, with the thigh flexed, and contracted to a right angle with the pelvis, so that the limb was utterly useless. Bony anchylosis, with the limb in a straight position, had been obtained as the result of the operation, and the man is now enabled to walk without the assistance of either a crutch or stick; and the bony consolidation at the seat of operation is such as to enable him to bear the whole weight of the body on the limb which had been operated upon.—*Med. Times and Gaz.*, Aug. 20th, 1870.

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51. *Enterotomy in Cases of Ileus.*—Dr. FRANTZEL describes in *Virchow's Archiv*, 1869, two cases in which an opening was made into the intestine for the relief of ileus. In the first of these cases the obstruction of the bowel was the result of *carcinoma recti*. The operation was attended with no difficulty, and the patient experienced great and immediate relief. Twenty-four hours subsequently, however, in consequence of a number of perforations through the coats of the intestine, which occurred between the point of operation and the rectum, diffused peritonitis set in and proved fatal in a few hours. In this case the operation would, no doubt, Dr. F. believes, have been followed by more permanently beneficial results had it been resorted to earlier. In the second of Dr. F.'s cases, which occurred in a robust young man, twenty-two years old, symptoms of ileus suddenly set in without any apparent cause. On the thirteenth day of the disease, all other available means having been tried in vain, Dr. F., as a last resort, performed the operation of enterotomy. The operation was readily performed, the opening being made as usual into the lower bowels. The artificial anus which resulted was kept open by an appropriate tent. After the regular action of the bowels was reinstated, the artificial anus was allowed to close, and the recovery of the patient was complete.

In order that the operation of enterotomy in appropriate cases may prove entirely successful, it should not, according to Dr. F., be deferred, after other remedies have failed to give relief, and it becomes evident without it a fatal result is imminent. In resorting to the operation, it should never be as a means of discovering and removing the cause of the intestinal obstruction, as it is scarcely possible that either object can in any case be effected. The opening into the intestine in every instance must be made above the seat of the obstruction, in order that a fatal result may be avoided, and time gained for the removal of the obstruction. Should the obstruction in the lower portion of the intestine, that is, the portion below where the opening has been effected, be found to be irremovable, the life of the patient may be preserved by continuing open the artificial anus permanently.

It is certain that in many cases of ileus, resulting from an entwisting or an invagination of a portion of intestine, that by the complete emptying of the intestine, which is obtained by the operation of enterotomy, such a condition of things is brought about as may result ultimately in the removal of the morbid state of the intestine.

In deciding upon the operation of enterotomy in cases of ileus, an inquiry into the nature and seat of the intestinal obstruction is unnecessary. The only question to be settled is as to the part at which the opening into the intestine is to be made, so as to be above the obstruction. To solve this question, the surgeon must resort to percussion by means of the pleximeter. When any portion of the abdominal parietes yields a metallic sound, it is certain that there exists there an open fold of intestine above the point of obstruction, and here it is the opening should be made.—*Centralblatt f. d. Medicinischen Wissenschaften*, April 30, 1870. D. F. C.

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52. *Herniotomy after supposed Successful Reposition of Bowel by Taxis.*—Dr. M. MUELLER (Cöln) relates, in *Von Langenbeck's Archiv* (XII. 1.), a case of incarcerated inguinal hernia of the right side, in a man twenty-eight years of age, and which was, apparently, successfully reduced by taxis. The symptoms of strictured intestine, however, still continued. On the second day after the supposed reduction they were still present. It was then concluded that the contents of the hernia had been returned *en masse*, with the stricture of the

intestine still continuing at the neck of the sac; a conclusion rendered probable by there being felt in the immediate neighbourhood of the inner ring a soft elastic tumour. The inguinal canal being laid open just within its abdominal orifice was found a portion of the hernial sac of the thickness of a finger firmly embracing, at its upper part, a fold of intestine. The sac being laid open with much care until the site of the stricture was reached; when the latter was divided the patient experienced immediate relief. Some degree of peritoneal inflammation set in, but was dissipated within six days, and the patient was entirely well at the end of four weeks.—*Centralblatt f. d. Medicinischen Wissenschaften*, May 21, 1870. D. F. C.

53. *Operation for Strangulated Hernia without opening the Sac.*—Mr. Geo. Y. Heath strongly advocates this operation, and says:—

"I know it may be said that this method cannot always be adopted; and indeed, in looking over some recently published cases of herniotomy, I must acknowledge to have felt some surprise at the frequency with which the sac has been opened.

"It has fallen to my lot, as indeed to that of most operators, to operate in such cases pretty frequently; and for the last fifteen years I have rarely found it necessary to open the sac. Unless, indeed, there be some special reason for doing this, such as the great length of time during which the rupture has been down, the manifest pressure of a large mass of omentum, or indubitable signs of change in the bowel, such as emphysema, putrid smell, or the like, I invariably attempt the reduction without opening the sac; and, according to my own experience, the test of the propriety of the proceeding is its practicability, for I have never in my own practice known a fatal result where the sac was not opened."—*Address in Surgery* in *Brit. Med. Journ.*, Aug. 13, 1870.

This method of operation has been strongly advocated by Dr. Erskine Mason, of New York. (See No. of this Journal for October, 1868, pp. 588–9.)

54. *Treatment of Hæmorrhoids by Taxis.*—Dr. Maclean read a paper on this subject before the British Medical Association. He remarked that hæmorrhoids are extremely common, but that we are rarely called upon for advice till the disease has assumed a stage in which ordinary remedies are of no use, and active procedure is necessary. He referred to the description of hæmorrhoids given by Erichsen, to the correctness of which he testified. From this it appears that all kinds of piles are composed of a sac or cells with fluid contents; and so long as this remains the suffering persists. An obvious though hitherto unnoticed plan of treatment consists in supporting the weakened walls, and then emptying the sac in the mode usually adopted in the case of hernial tumours. He was led to the discovery of its efficacy from employing it in a case of piles occurring during labor. The method he proposes consists first in getting a free evacuation of the bowels by some aperient medicine, and when the effects of the medicine have passed off, he orders the parts to be well fomented for a few hours, to relieve as much as possible the irritation and spasm of the parts. He then proceeds to apply the taxis to the tumour. Taking a piece of soft, well-oiled cloth, and grasping one of the tumours—if there be more than one—with two fingers and the thumb, thereby encircling the enlargement, and curving the fingers so that they cover the fundus of the pile, he proceeds to press the tumour towards the mouth of the sac, with a kneading motion continuing for a little time until he finds the swelling become gradually smaller under the manipulation, and there only remains the thickened integument, and whatever effusion of serum may have taken place into the cellular tissue. In the beginning of the application of this process the pain is sometimes considerable; but as the tumour becomes emptied, the pain decreases, and when fully reduced a great sensation of relief is experienced. Having completed the reduction of the first hæmorrhoids, the same procedure is applied to the others in rotation; and the whole being reduced, astringent lotions or ointments are applied to the part, and the operation is complete. In internal piles the application of the taxis is conducted in the same manner; but here it is necessary to cause the extrusion of the tumours, and this can be done, as in the removal

by the ligature, by passing an injection of tepid water into the rectum, and then getting the patient to expel them by straining, when the same process is gone through as in external piles, and on the return of the bowel attention is given to the constitutional disorder, and an injection of astringent lotions, &c., is administered.—*Lancet*, Aug. 20, 1870.

55. *Improved Operation for Fistula in Ano.*—Instead of the bistoury impinged upon the finger *in ano*, and brought down through the sphincter with some difficulty, Mr. WEEDEN COOKE has employed a scissors, the blades being separately passed into the fistula and rectum, and then connected by means of a movable screw. Mr. Cooke operated with this instrument, which was made at his suggestion by Messrs. Weiss, at the Royal Free Hospital on the 23d of April. Having introduced his fingers into the rectum, he passed one blade of the instrument into the fistula up to the extreme point; he then passed into the rectum the other blade up to a corresponding point. The two blades were then connected by a small screw, and with one rapid scissors-action the operation was completed in a second of time. The pain was infinitely less than that produced by the bistoury. As the position required for this operation renders the use of chloroform very difficult, it is well known that the shrinking of the patient often gives trouble to the surgeon, so that the rapidity of this method of operating is important both to the patient and the surgeon; and, in the case referred to, its efficiency was verified by Mr. Cooke's colleagues who were present.—*The Practitioner*, July, 1870.

56. *Puncturing the Bladder above the Pubes.*—Prof. DITTELL observes that notwithstanding the ease with which this operation may be performed, except in very fat persons, it is yet generally avoided as far as possible. This arises from the subsequent difficulty of dealing with the catheter. Where the urethral passage can be speedily re-established, everything goes on well. But this is not always so when the urine has to be discharged by the artificial aperture, owing to the great difficulty of retaining the catheter without giving rise to various complications, such as irritation of the mucous membrane of the bladder, cystitis, pyelitis, &c. The end of the rigid catheter prevents all movements on the part of the patient, while its retention causes it to be covered with incrustations, which irritate the mucous membrane. The idea occurred to Prof. Dittell of substituting for the rigid metallic catheter one of vulcanized caoutchouc, and the advantage he has derived from this is the cause of the present communication. He narrates the case of a patient who suffered from retention of urine in consequence of a tumour of the prostate. Between the 17th November and the 19th August he underwent the operation of puncture three times, the catheter on two occasions having slipped out without (he being a fat man) it being possible to reintroduce it. On the last occasion, after remaining in two or three weeks, it caused great pain and induced cystitis, and the following simple apparatus was substituted. This consisted of a catheter of vulcanized caoutchouc, having at its end a round somewhat arched disk. From the other side of the disk another caoutchouc tube branched off, which communicated with the catheter, and hung freely down. The catheter was passed down as far as the disk, and secured. All irritation now subsided, and the patient was able to move about without inconvenience, the urine being discharged from time to time through the depending tube. When the catheter becomes incrusted, which it does far less rapidly than is the case with metallic catheters, it is replaced by another. It will probably be best to employ a metallic catheter for the first fortnight, before resorting to the caoutchouc one, as in that time a canal will have been formed from the wound, which will allow it to be introduced and replaced without difficulty. This procedure does away with the complications which usually ensue on this operation, and by rendering it less dangerous, it will probably render its performance more frequent.—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Allg. Wien, Med. Zeit.*, Jan. 4th.

57. *Effects of Shortness of the Frœnum of the Prepuce.*—M. JANSEN observes that some years since his attention was called to the frequency with which shortness of the frœnum of the prepuce occurs, and to the relation which it bears to phimosis. Having under his charge a considerable body of troops, he availed himself of the examinations, which are officially made in the Belgian army, to ascertain the proportion in which the defect prevailed. Of 3700 soldiers examined, he found that 3153 (85.2 per cent.) had the prepuce of normal conformation; 458 (12.3 per cent.) had shortness of the frœnum; and 89 (2.5 per cent.) great narrowness of the prepuce. Thus 547 out of 3700 soldiers had this vicious formation in a greater or less degree. He examines in detail the various consequences that may ensue on this state of things, and concludes as follows: "1. This shortness of the prepuce, which has hitherto been so little noticed, is deserving the attention of practitioners. 2. In all these cases it is more or less difficult to expose the glans, and a certain degree of phimosis consequently always exists. When this is highly marked, the prepuce also exhibits at the same time a manifest narrowness. 3. This narrowness of the prepuce may give rise to accidents due to the absence of cleanliness; accidents dependent upon the traction exerted by the frœnum on the meatus, and interfering with erection, ejaculation, and micturition; and to numerous accidents due to the phimosis itself. 4. Whatever treatment the patient may be submitted to, as long as the vice of conformation in question is not removed, the above accidents will not be remedied. 5. When there is no narrowness of the extremity of the prepuce, the division of the frœnum suffices. Otherwise, circumcision must be performed, taking care to leave the prepuce as long as possible, or to effect its dilatation."—*Brit. and For. Med.-Chir. Rev.*, July, 1870, from *Journ. de Méd. de Bruxelles*, Jan., Feb., March.

58. *Observations on the Treatment of Gonorrhœal Orchitis by Debridement of the Testicle, as recommended by Vidal (de Cassis).*—M. SALLERON, in an instructive article in the *Archives Générales* for February last, on this subject, shows how much caution should be exercised in receiving the statements of even so high an authority as Vidal. That surgeon, in his *Pathologie Externe*, states that, as orchitis is an inflammation accompanied by strangulation, owing to the dense fibrous tunic which envelopes the testis, the best treatment is to make a small incision into the tunica albuginea by means of a lancet or bistoury. The operation, he says, causes little pain, and is quite harmless, for among 400 patients so treated, he never met with any accidents whatever, while the patients very speedily obtained relief. This little operation had likewise promptly succeeded where other most energetic means had failed to be of any use. That the practice has not proved so successful in the hands of others is shown by the fact that it has not become generalized; and M. Salleron, in this paper, relates two cases to show that it may do much eventual mischief. In both of these prompt relief followed the puncture, but the whole of the substance of the testicle was also, in both, discharged through the wound in spite of every care taken to prevent it.

M. Salleron shows that, from the anatomical structure of the parts, this result must be expected, and he does not accept in explanation of Vidal's not having met with such effects, the suggestion advanced by Gosselin and others, that he did not penetrate the tunica albuginea at all. It is highly probable that among the 400 cases operated upon by himself and pupils this was sometimes the case, and, as in one-half the cases of orchitis, there is accompanying effusion into the tunica vaginalis, this might even not unfrequently happen; but there can be no doubt that in many of his cases Vidal penetrated the tunica albuginea, and probably contented himself with noting the immediate relief obtained from the operation.

From what he has himself witnessed, and from the two cases which he relates, M. Salleron considers that he is justified in concluding: "That in gonorrhœal orchitis, even parenchymatous, the debridement of the tunica albuginea is a useless operation when not dangerous, and very dangerous when we might suppose that it will be useful."

59. *A New View of the Origin and Propagation of the Venereal Disease and its Successful Treatment by Inoculation with Vaginal Discharge.*—Mr. J. MORGAN, Surgeon to Westmoreland Lock Hospital, Dublin, expresses some novel views on this subject in a paper published in the No. of the *Dublin Quart. Journ. of Med. Sciences* for August last. These views he says are the deductions from 1582 cases observed by him during the last two years in the hospital to which he is attached, and which indicate a new source of contagion from which the usual soft or chancroid venereal sore is derived.

"The discrepancy," he remarks, "amongst syphilographers as to the variations in the forms of the disease and its after consequences in the male and female, always seemed difficult of explanation, and led me to make a close examination by experiment as to its nature and origin in the patients under my charge at the hospital as compared with male patients met with in private and general hospital practice. I could not fail to observe that in this city, the frequency of chancroid or soft sores in the male uncomplicated with constitutional signs, was excessive in proportion to those cases in the female who suffered from genital sores, while on the other hand the frequency of constitutional symptoms in the female was excessive in proportion to the male."

The frequent coexistence of a vaginal discharge of a muco-purulent, form with the earlier stages of constitutional syphilis, he thought afforded some clue to the solution of this question, and led him to make some experiments, the results of which he thinks, shows "that the product of the vaginal discharge of a patient suffering from syphilitic infection, is a chancroid or soft sore, when the discharge is introduced under the skin or applied to an abraded surface. It is also shown that this sore is propagated as a chancroid or soft sore, and is again (so far as my experiments went) capable of indefinite propagation still as a soft sore or chancroid."

"A more remarkable power," he says, "possessed by this vaginal secretion is the production of a chancroid by inoculation on the patient's own person." * * * "I have on several occasions taken the secretion as wiped from the os uteri and inoculated unsuccessfully with it, while from the vaginal discharge I have been successful.

"I have inoculated from the vaginal secretion of cases of uterine ulcer and from the ulcers themselves without any result.

"I have also inoculated the gonorrhœal discharge of the male without result.

"In all my inoculations the result has invariably been the characteristic pustule and soft or chancroid sore, capable of reproduction; the question therefore arises, was the original affection a chancroid or soft sore capable of infecting the system, or a hard sore, which is admittedly so capable; I cannot give any information on the latter point, as unfortunately in the only two cases of hard sore which have been admitted to the hospital during the last eight months I did not inoculate. So as to be capable of transmitting a sore by inoculation from the vaginal secretion it seems necessary that the patient must be suffering from the earlier stages of constitutional infection, whether as yet latent or developed."

The vaginal secretion, Dr. M. states, retains its power of infection for a considerable time after the healing of the primary sore or of the first constitutional evidence.

In all the inoculations made by Mr. M. the products from the artificially generated chancroid was, he stated, a chancroid, though generated from and on syphilitic subjects.

"With regard to the propagative property of the poison in women, it might be supposed that once the sore is healed there is no further danger of a sore being communicated, which even a chancroid, as I believe it might appear in an untainted subject, would be lethal to the system by conveying the syphilitic poison. This error the illustrative cases show fully would be a serious one, as the non existence of a genital sore in the female is no absolute guarantee of the non-existence of contagion power."

Mr. M. has found the following variations in inoculation with the vaginal discharges:—

"The activity of the discharge seems to vary—thus, immediately before or after the menstrual period it is less active.

"The same discharge would succeed in some cases and not in others, and though failing to produce a specific pustule one day it would not on another.

"As in vaccination, the admixture of a little blood in making the inoculation generally rendered it nugatory.

"The more robust and vigorous the patient, the more perfect was the inoculation, and the more persistent it became, being indeed difficult to heal.

"Every succeeding generation from the vaginal discharge seemed progressively to increase in inoculative power.

"The more infected the recipient the more difficult to inoculate, and the greater the tendency to heal.

"Every succeeding inoculation on the patient's own person seemed to increase in inoculative power."

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60. *Investigations as to the Cause of the Great Gravity of Anthrax and Furuncles of the Face.*—The numbers of the *Archives Générales de Médecine* for June, July, and August last, contain an elaborate article on this subject, by J. L. Reveratin, Interne Lauréat des Hôpitaux.

The following are his conclusions:—

1. Anthrax and furuncle of the face are very grave affections.
2. This gravity is owing to their being prone to be complicated with phlebitis.
3. Facial phlebitis tends to a fatal termination, either by its extending to the sinus of the dura mater, or by becoming the source of purulent infection.
4. Anthrax in the lips are complicated more frequently than when situated in other parts of the face with phlebitis, which fact is to be accounted for by the particular structure of the lips.
5. Anthrax of the lips is entirely different from malignant pustule.
6. The extension of phlebitis to the orbit, shown by the presence of exophthalmia, shows almost positively that the sinus has become affected.
7. Incision, made as rapidly and as largely as possible, appears to be the best means of preventing and sometimes of arresting the complication of phlebitis.

OPHTHALMOLOGY.

61. *Calabar Bean in Suppuration of the Cornea.*—M. Galezowski expresses himself (*Annuaire de Thérapeutique*, 1870) in favour of the instillation of solution of Calabar bean in the treatment of this form of ophthalmic disease. The contractile action exerted by the bean on the vessels of the cornea opposes their dilatation and congestion, and singularly aids the cicatrization of wounds. Belladonna, which produces opposite effects, should, he thinks, be discarded in these affections.—*The Practitioner*, July, 1870, from *Annuaire de Thérapeutique*, 1870.

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62. *Luxation of the Lens; Mechanism of Accommodation.*—M. Dufour reports three cases, of which the two first particularly allowed of conclusions being drawn as to the state of the accommodation. When, according to the theory of Helmholtz, the lens in the state of rest of the accommodation is kept by the zonula stretched out and flattened, then it may be expected that the (luxated) lens freed from the zonula would be the more convex; it must, therefore, by lens-luxation appear short-sightedness, which is yet more increased when the lens falls into the anterior chamber, so that the space between it and the cornea is abolished. The investigation of the cases (three brothers and sisters, all of them suffering from spontaneous luxation of the lens of both eyes) corroborated the above opinion completely.

In the first case the lens in the left lay chiefly, with exception of its upper border, in the anterior chamber, therewith myopia, about $\frac{1}{3}$—$\frac{1}{2}$ (with much

amblyopia) subsisted; in the right, by simple dislocation of the lens inwards, the myopia reached only $\frac{1}{4}$; accommodation seemed not to be present. The myopia cannot be due to sclerectasia posterior, the ophthalmoscopic appearances of it were altogether wanting, and the eye was not of a myopic shape. Moreover, by extraction of the lens the left eye was very hypermetropic ($\frac{1}{3}$), more so than it ought to be by previous emmetropia. After a longer time the lens in the right eye fell into the anterior chamber, by which increase of the myopia to about $\frac{1}{3}$; after extraction, hypermetropia $\frac{1}{3}$—$\frac{1}{2}$, with some irregular astigmatism.

In the second case, in the left eye the edge of the lens extended across the pupillary region; the oblique position of the lens induced monocular diplopia, whereby the one image with half the lens, the other without it, was projected. The refraction corresponding to the part of the pupil independent of the lens was hyp. $\frac{1}{15}$, whereas the part corresponding to that yet furnished with lens, myop. $\frac{1}{2}$. The difference in the refrangibility of the two parts of the same eye, $\frac{1}{1\frac{1}{2}}$, is in this much greater than the effect of the lens in a state of rest of the accommodation corresponds to, it betokens much more an accommodation of 4—5 inch distance. (In the right eye of this person the lens had fallen down altogether into the vitreous; it suffered from very considerable amblyopia.)

The action of the mere advance of the lens by evacuation of the aqueous humour Dufour found by repeated experimentation to be equal to an increase of refrangibility of about $\frac{1}{12}$—$\frac{1}{14}$, in accordance with previous definitions of Von Graefe's.—*British and Foreign Med.-Chir. Rev.*, July, 1870, from *Centralblatt*, March 12, 1870.

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63. *Structure of the Zonula Ciliaris.*—Dr. F. MERKEL, in a recent Dissertation gives the results of his researches respecting this structure of the eye, and which he states demonstrate the zonula to present a triangular form on section, and that it arises from the apices of the ciliary processes and extends to the margin of the capsule, of the lens, to the anterior and posterior surfaces of which it is attached. The so-called canal of Petit does *not* exist in the living animal, and the zonula contains no fluid but what it is capable of imbibing. It commences at the pars ciliaris of the retina, to which it is most intimately connected; and here consists of the fibres so well described by Henle, which can be easily demonstrated by tearing away the zonula in an eye that has been soaked for a few hours in a solution of chromic acid containing one-sixth of a grain per ounce. The fibres are very fine, stiff, and straight, and are probably not united into a membrane, but lie free on the surface of the vitreous. They are to a certain extent elastic, as they often assume a wavy form. Near the commencement of the zonula ciliaris are numerous cells, each with large nucleus and small amount of cell-substance, which form only a single layer, though by no means lying in the same plane. Besides these most posteriorly situated fibres, the ciliary zone, as it passes forwards towards the apices of the ciliary processes, increases considerably in extent by the accession of fresh fibres. The fibres pursue three main directions: a few turn back and end in the vitreous, the majority run from the apices of the ciliary processes towards the lens, and a few run circularly; the latter have a more internal position than the former. Dr. Merkel considers the canal of Petit (so generally admitted) to be an illusion, and due to the facility with which the fibres break down and separate from each other; and he supports his view by reference to the results obtained by injections made with Prussian blue, and by preparations made by staining with nitrate of silver. In neither case can the presence of a distinct membrane be demonstrated. In regard to the physiological value of the zonula, Dr. Merkel entirely accords with the views expressed by Schwalbe—that it constitutes the antagonist of musculus ciliaris, and effects the flattening of the lens.

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64. *Lymphatic Spaces of the Eye.*—The last number of the *Quarterly Journal of Microscopical Science* contains a good *résumé* of SCHWALBE's paper on the lymphatic spaces of the eye, contributed to the first part of Schultze's *Archives of Microscopical Anatomy* for the present year. In this paper are

described the lymphatic spaces of the posterior division of the eyeball, which include the perivascular spaces of the retina, the perichoroid space with its efferent channels, and, finally, a lymphatic space between the outer and inner sheaths of the optic nerve, which, without communicating with the other two, opens directly into the arachnoid sac of the brain. Between the inner surface of the sclerotica and the outer layer of the choroid is a space which was recognized by Arnold as a serous cavity, and to which the name "arachnoidea oculi" might be given. It is distinct from the lamina fusca, though in part occupied by connective tissue, elastic fibres, and stellate pigment cells. The opposed surfaces are smooth and shining, and, after treatment with nitrate of silver, exhibit epithelial markings with oval nuclei. It is most distinct in white rabbits, but cannot be demonstrated in the eye of man, on account of the difficulty of obtaining fresh human eyes. When filled with a coloured fluid by injection, the space was found to reach backward to the neighbourhood of the entrance of the optic nerve, and forward as far as just under the ciliary processes. The injection left the ball at four points corresponding to the entrance of the venæ vorticosæ, and cross sections showed that the veins were encircled by the injection. On escaping from the globe, the injection filled the capsule of Tenon, which again was found to communicate backwards, by a cylindrical channel surrounding the outer fascia of the optic nerve, with the arachnoid space of the skull. Besides the canal just spoken of as surrounding the whole optic nerve, to which the author gives the name "supravaginal" space, there is another included between the two fasciæ of this nerve, which he calls the "subvaginal." This is continuous with the arachnoid, but does not communicate with the proper lymphatic spaces of the eye.—*Lancet*, May 7th, 1870.

MIDWIFERY.

65. *Dystocia depending on the Simultaneous Presentation of the Two Heads of Twins.*—Dr. Rinter was called by a midwife to a woman twenty-eight years of age. In this case the child's head, after a breech presentation, was locked by complete absence of uterine contraction. Dr. Rinter found the whole child born save the head, the uterus inert, and the mother very feverish. The child was dead, and in vain did the accoucheur try to find, with his finger, the chin or the mouth; he could only feel the cranial bones without succeeding in making out the sutures. By the hand laid on the abdomen the presence of a second fœtus was made out. Tractions on the trunk of the child already extruded were unsuccessful. At last the forceps were used, and with much difficulty the head was extracted; but the operator was dismayed on seeing that it belonged to the *second* fœtus. The cord was soon divided, and a living boy handed to the nurse. The head of the *first* child was now sought for, the chin and mouth easily found, and the extraction effected. The placenta followed immediately; it was very large, and common to both children. The mother did well. Happily Dr. Rinter did not resolve to *diminish* the head when he found it so completely locked, and the child dead.—*Lancet*, July 2, 1870, from *Gaz. Méd. de Strasbourg.*

66. *On the Influence exerted by Chloral on the Pain of Parturition.*—The *Edinburgh Medical Journal* for August, 1870, contains an interesting article on this subject by E. Lambert, Esq. The following are the author's conclusions:—

1. Chloral is an agent of great value in the relief of pain during parturition.
2. It may be administered under favourable circumstances during and at the close of the second stage, with the result of producing absolute unconsciousness in the same sense in which we understand unconsciousness under chloroform.
3. When thus given successfully, it has this advantage over chloroform, that it requires no interference with the patient.
4. It is desirable to retain chloroform in the position which it at present

occupies in widwifery, and to reserve for the agency of chloral the first stage of labour. If, however, chloral or some agent having analogous properties is found successfully to relieve the pain of uterine contraction, the use of chloroform will be restricted to a lesser period of the duration of labour, or to the facilitation of manual or instrumental interference.

5. It is demonstrated that a labour can be conducted from its commencement to its termination, without any consciousness on the part of the patient, under the sole influence of chloral.

6. The exhibition of chloral in nowise interferes with the exhibition of chloroform.

7. The proper mode of exhibiting chloral is in fractional doses of gr. xx every quarter of an hour until some effect is produced; and according to the nature of that effect the further administration is to be regulated. Some patients will require doses of ʒj; and it is better to produce an anæsthetic effect by ʒiij given in the space of two hours than by ʒj given singly.

8. The effects of chloral are continued beyond the period of completed parturition, and the repose experienced by the patient after her labour is one of the favourable circumstances to be noted in considering its application to childbirth.

9. Any stimulating effects, in the form of general excitability, occasionally observed during the administration, have passed away very rapidly.

10. Chloral not only does not suspend, but rather promotes uterine contraction by suspending all reflex actions which tend to counteract the incitability of the centres of organic motion.

11. Labours under chloral will probably be found to be of shorter duration than when natural, for unconscious contractions appear to have more potent effects than those which are accompanied by sensation of pain.

12. Experiments are required in order to determine whether there exists the same antagonism between ergot and chloral as is known to exist between strychnia and chloral.

13. The general conditions under which chloral is to be administered are the same as those which regulate the administration of chloroform, and the rules laid down by Sir James Simpson in connection with this subject must be rigidly adhered to.

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67. *Duration of Gestation.*—Dr. AHLFELD investigates with great care the problem of the *duration of gestation.* Taking 219 cases observed by himself, by Hecker, and by Veit, he finds that conception took place on an average 9·72 days after the *first day* of menstruation, and in 161 cases on an average 5.28 days from the *last day* of menstruation; but it most frequently took place within three days, Faye arrived at a similar result.

As to the question whether the virginal os uteri is more easily disposed to conception than the gaping os of women who have borne children, he finds that, comparing 130 pluriparæ with 75 primiparæ, the same average of about ten days after the first day of menstruation was observed.

Taking 425 women, whose children seemed mature, the average duration of gestation was 269.91 days, reckoning from day of conception. Hecker's tables give an average of 273.52 days. The range was from 231 days to 329, so that there is manifestly a fault in determining the day of conception.

Ahlfeld gives a table of thirty cases, including six from Faye, of presumed single or well-defined coitus. Gestation varied from 233 days to one case of 313 days. Both these extremes are taken from Faye. The greater number ranged within 270 and 275 days. The average of all was 269.17 days, which corresponds closely with the period obtained by other modes of observation. (It is to be remarked that the weight of the child in Faye's minimum case was 3000 grammes, and in the maximum case of 313 days it was only 2530. Since 3000 grammes is below the average weight of a mature child, it seems only reasonable to infer that conception took place considerably within 313 days. With this exception no other case out of the thirty exceeded 287 days, and of the remaining twenty-eight all were below 282.—R. B.)

Ahlfeld then refers to the law enounced by Cedershjöld that labour takes

place at the tenth menstrual epoch due, so that we should multiply the individual interval between two periods by 10. In many women this interval is not 28 days, but 27½, 28½, 29, 30. Hence a duration of 275, 285, and so forth, is explained. By most authors, says Ahlfeld, the duration is placed too high; 280, even 275 days, is too high. To estimate the expectancy of labour Naegele added seven days to the first day of the last menstrual appearance, and then reckoned three calendar months back. Thus he took as the date of conception the second day after the cessation of menstruation, with an average duration of menstruation of five days. Thus he arrived at an average of 273 days, which is very close to the reality. Ahlfeld's own plan is to take the tenth day from the beginning, the fifth from the end, of menstruation. There is a possible error in both ways of fixing the date of conception, and to illustrate this point he gives a table of 261 cases, calculated according to both, and showing the actual day of labour.

As to the sensation of the movements of the child, he shows that in 43 cases, in which the day of its occurrence was noted, it ranged from 108 to 134 days, the average being 132.77 days.

The duration of labour in primiparæ was, on an average, 20 hours 48 minutes, and in pluriparæ 13 hours 42 minutes.—*British and Foreign Medico-Chirurgical Review*, July, 1870, from *Mon. f. Geb.*, 1869.

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68. *Ovum in a Case of Blighted Embryo.*—Dr. M'Clintock, in a communication made to the Dublin Pathological Society, Jan. 22, 1870, said the ovum or part of the ovum may be retained in the uterus for several weeks or months after the embryo has been blighted, and this fact, if overlooked or disregarded, may occasionally place a practitioner in an exceedingly embarrassing position. The specimen, which I now exhibit, is a very striking illustration of this prolonged retention of a blighted embryo. Any one familiar with the examination of the human ovum would say that this was a conception of five or six weeks. The little embryo, very perfect, and not much larger than a house fly, can be seen hanging by the umbilical cord; a casual observer would naturally say this conception took place six weeks or two months ago. The fact is, however, that in this case conception took place seven months ago, and it is this which imparts to the case its clinical interest. The lady had had several children previously, and so ought to have been tolerably familiar with the subjective phenomena of pregnancy. She had been carrying this ovum for six months; but of course, the simple explanation is, that it was blighted at the end of six weeks from the time of conception, and retained. There is another fact connected with cases of this kind, that while all vital connection between the ovum and the uterus has ceased, the ovum may be retained in the uterus subsequently, and finally expelled in a non-putrefactive state, which is a very curious and inexplicable circumstance. This is a good illustration of it; for although there is no doubt the vitality of this ovum had ceased several months ago, it was not expelled putrid, nor was there any offensive odour connected with it. For the last three or four months the lady had been greatly tormented with hemorrhage. When I was asked to see her, and was told of the seven months' pregnancy, and of the hemorrhage, I began to think the case was one of placenta prævia; but a very superficial examination was enough to show how erroneous this supposition was. The abdomen was flat and resonant all over, and on instituting the requisite examination internally I found an ovum partly extruding from the uterus; it was removed easily; whereupon the hemorrhage ceased. The retention of this had given rise to some irritative fever; for the lady had occasional rigors; the pulse was frequent; and her skin was dry and hot. I have before alluded to considerations of a medico-legal nature connected with such cases as these. The size and development of the ovum would be no proof of the time at which conception took place; hence if a woman some months separated from her husband, expelled such an ovum as this, and a practitioner were to say that it was only a conception of a few weeks, he would cast an imputation on the woman's character that might involve him in disagreeable consequences. Such a case as this, therefore, shows the necessity of great caution. Dr. Matthews Duncan, of Edinburgh, has described a case in which

an ovum of a similar kind was retained seven months in utero, the lady having in the meantime performed a voyage from India to Edinburgh, without the ovum being expelled. In this case there was no trace of an embryo; to use the expression applied to the eggs of hens, and which is quite appropriate here, it was truly an addled ovum.—*Dublin Quart. Journ. Med. Science*, Aug. 1870.

[A number of cases of blighted fœtus long retained in the uterus without becoming putrid, have been recorded in different numbers of this Journal.—ED.]

69. *Pregnancy without Menstruation.*—Dr. JAS. YOUNG read to the Obstetrical Society of Edinburgh some statistics which he had collected, showing how frequently pregnancy had occurred where the women had never menstruated more than once or twice during ten or twelve years, and where six or eight children had been born. Among other cases, the following two might be specially mentioned:—

CASE I.—Mrs. M. was married on 10th September, 1859; menstruated in October thereafter, but not again to this date (June, 1870), and she has had six healthy living children.

CASE II.—Mrs. J was married in January, 1856, and has only menstruated three times up to this date (June, 1870), and is now the mother of nine children, seven of whom are alive.

Dr. Young remarked that in both cases the patient had menstruated regularly previous to their marriage.

Mr. Pridie said he had attended a girl in her first confinement, who was 15 years of age and had never menstruated; and he knew of a lady who had been married for twelve years, had seven children, and had only been seven or eight times unwell.—*Ed. Med. Journ.*, July, 1870.

70. *Atresia Vaginæ, and Retention of Menses for Ten Years, with Enlargement of Uterus from the Blood accumulated within its Cavity, causing it to reach a Hand's Breadth above the Umbilicus; commencing Rupture of one of the Fallopian Tubes; Puncture of Uterus by an Exploring Trocar; Favourable Termination.* Dr. P. HALBERTSMAN, in the *Nederl. Tijdschr. voor Geneesk.*, 1869, describes this curious and instructive case. The beneficial effect resulting from the small opening made into the blood-distended uterus by the exploring trocar, even when there exists enlargement by blood of the Fallopian tubes, Dr. H. explains by remarking that a rapid withdrawal of the blood from the uterine cavity, the Fallopian tubes, if adherent, would run the risk of rupture, or if not adherent, they would contract simultaneously with the uterus, and their contents be forced through their fimbriated extremities into the peritoneal cavity. These results are obviated by a small opening into the uterus, thus permitting the contained blood to escape *guttatim*. The rupture of the Fallopian tubes will thus be prevented, or if already commenced, its further extension prevented, while their contents will be more certainly discharged through the uterus.—*Centralblatt. f. d. Medicin. Wissenschaften.*, March 12, 1870. D. F. C.

71. *On Some of the Dangers attending the Use of Tangle Tents.*—Dr. L. AITKEN states (*Edinburgh Medical Journal*, Aug. 1870) that he has occasionally seen pelvic peritonitis and cellulitis and endometritis result from the use of the sea-tangle tents, and he gives the following precautions, attention to which will, he thinks, prevent these accidents. Since he has employed them, he says, he has never had any worse result from the use of tents than the production of slight and transitory forms of cervical catarrh. These precautions are:—

1. The non-employment of the tent, so long as we are convinced that there exists any endometritis, or any recent perimetric inflammation, of whatever nature it may be.[1]

2. Tents ought only to be used in the intervals between, never (except under

[1] To this head we ought to add that it is never very safe to use tents where there has existed any previous perimetric inflammation which has left bad effects behind, either adhesions, for instance, or chronic inflammatory products.

the most urgent circumstances) either during, immediately before, or immediately after a menstrual period.

3. The greatest care must be taken in the introduction and removal of tents to avoid any violence or force. Any bleeding caused at either time ought not to be interfered with unless it become serious.

4. The tent should only be used when the patient can remain recumbent from the moment of its introduction to a period after its removal, which varies with each patient. This period ought never to be less than twelve hours, and should usually be much longer.

5. If the patient complains of pain from the action of the tent, an opiate of some kind—a suppository of morphia often suits—a dose of chloral, or warm water injections, ought to be employed to diminish or relieve it, and thus prevent that restlessness which the pain will inevitably cause, and which is the surest means of producing inflammatory action in the womb or adjoining serous membrane and cellular tissue.

6. If successive tents require to be employed, it is much safer to allow an interval of twelve hours to elapse between each. A greater interval even would be preferable; but the cervix often closes up rapidly after its dilatation, and if we were to wait much longer we should frequently have to begin *de novo*.

7. The tangle tent is fully expanded, and ought to be withdrawn, in eight to ten hours after its introduction.

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72. *Introduction and Removal of Uterine Tents.*—Dr. L. Aitken gives (*Edinburgh Medical Journal*, Aug. 1870) the following useful instructions on this subject:—

"Whether the tent we intend to use be of sponge or sea-tangle, it is decidedly preferable to commence by expanding the vagina to some extent by a speculum, and for this purpose no better instrument can be found than that of Dr. Marion Sims. In the introduction of the sea-tangle it is by no means so absolutely necessary to use the speculum as in the case of the sponge tents, as the latter, however well prepared, so rapidly imbibe the fluids of the vagina, if allowed to come in contact with them, that they become soft and flexible, and consequently useless, before they can be introduced into the os uteri, and the employment of the ordinary form of Sims' speculum necessarily entails the presence of a third person, which is occasionally very strongly objected to. The use of any of the varieties of bivalve specula prevents us, of course, from grasping and drawing forward the anterior lip of the os with the tenaculum, and thus frustrates one of the principal purposes for which the speculum is required at all. For the introduction of the tents, too, we require to be provided with different instruments. For the sponge and hollow tangle tents I generally employ the form of bent stilette, long ago recommended by Sir James Simpson; while the solid laminaria tent is more firmly grasped and more easily manipulated by a long-handled and roughly-serrated modification of the polypus forceps.

"Having thus settled the preliminaries, it is by no means difficult, in the great majority of cases, to slip the tent into the os and cervix, but occasionally it happens that you meet with some obstacle to this easy entrance. The most common impediment usually arises from the catching of the point of the tent in one of the folds of the cervical mucous membrane. But this only requires to be mentioned to suggest its own remedy. Much more difficulty, however, is experienced in overcoming the real stricture which often exists at the os internum. It ought never to be forgotten that the internal or cervico-uterine orifice[1] is the narrowest point of the canal, and that it is here that the point of the sound is most commonly arrested. In selecting the size of tent to be first used, we ought consequently to be guided by the information which a previous use of the probe has given us of the state of this orifice. In some few cases it will be found impossible to pass a tent, and then the only rational treatment is to

[1] Of course I am speaking of the normal uterus. I believe that the os externum is the most common seat of congenital or acquired stricture, but a stricture there would probably require division before the tent could be employed at all.

dilate the stricture by the pressure of metallic bougies[1] of gradually-increased diameter. * * * * *

"Of all the impediments to the entrance of the tent, however, the most annoying, and probably the most common, is the result of a flexion of the body of the womb on its cervix. The internal orifice, at or near which the flexion almost invariably occurs, is thus most effectually strictured, and the position of the womb is such that it is next to impossible to introduce a straight tent. I ought here to remark, that if the flexion has been produced by adhesions of the uterus to the surrounding parts from bygone inflammatory action, a tent ought never to be used. At least, I know of scarcely any circumstances which would justify the dilatation of the cervix and body of the womb under the imminent risk of a renewal of the peritonitis. To get over the difficulty, I at first thought of employing tents bent to some extent in the same direction as the axis of the flexed uterus, but this was proved by trial to be much better in theory than practice, as at the angle of flexion of the uterus the tent invariably became deeply indented, and thus merely enlarged the cervical and uterine cavities, leaving a strictured part between. I now find that the only real escape from this difficulty is to employ a probe to replace the uterus as nearly as possible in its normal direction, and then to slip in the tent by the side of the metallic director.

"In extracting the tent, the only common source of difficulty arises from its occasional unequal dilatation. It sometimes happens that the existence of a stricture of the cervix, whether it be at the internal os or any other part, may produce such an indentation of the tent as to give it an hour-glass form. When this rather awkward result ensues, we ought never to use any great force in our efforts at removing the tent. Grasping the lower end firmly with a three-toothed vulsellum or large artery forceps, and gently moving our hand backwards and forwards with a to-and-fro motion, we can usually succeed without any great traction in bringing out the tent. A much more formidable complication I have already mentioned as occasionally following the use of a tent which has been pushed too far within the uterus, and over which the os externum has closed. Such a result, however, can only be the sequence either of great carelessness in the use of the tent, or of the employment of too short a one; and, to avoid it, we ought never to introduce a tent under two inches in length. In extracting the tent, Sims recommended us invariably to dilate the vagina by the speculum; but this I seldom, if ever, do, and I never even use any instrument for the extraction, unless the string which is attached to the tent gives way—a frequent occurrence, however, owing to its often becoming softened by its prolonged soaking in the vaginal discharges. The entrance of air into the dilated cervical and uterine cavities is a danger I certainly never met with, and can scarcely even conceive possible; or even if it did occur, it does not seem likely that it would produce any very injurious result."

73. *Abnormal Dilatation of the Uterine Cervical Canal.*—Dr. MULLER relates the history of two cases which occurred, the one in a female thirty-four years old, and the other in a female forty-five years old. Both repeatedly parturient. The patients had for some time been suffering from symptoms of uterine disease, the result, in one, of chronic metritis, in the other of retroflexion of the womb. On an examination into the cause of a profuse menstruation present in both cases, Dr. M. found the os uteri open and readily entered, and the cervical canal dilated to the size of a guilder, its inner surface rough, uneven, and flabby. The inner mouth was closed. It was very certain that this condition of things was not the result of a recent abortion, and equally so that neither polypus nor other tumor was present. This was further shown by the persistence of the condition described in the first case for many weeks, and in the second for many days. In both cases a cure was effected by the use of the liquor ferri sesquichloridi and other astringents, and the fear of the occurrence of carcinoma uteri,

[1] Previous incision of the internal orifice could not be recommended if the tent required to be used immediately afterwards. This is by far too dangerous a proceeding to be practised merely for the diagnostic purposes I am here speaking of.

which was, at first, entertained, entirely removed. Dr. M. refers all the symptoms in the cases described to a peculiar diseased condition of the mucous membrane of the uterus.—*Centralblatt. f. d. Medicin. Wissenschaften.*, June, 1870, from *Scanzoni's Beitr. zur Geburtskunde u. Gynäkologie* vi.

D. F. C.

74. *Retroversion of Uterus cured by Local Depletion.*—Dr. Meadows records a case of a woman, æt. 41, who had had three children and three miscarriages, and presented the usual symptoms of chronic metritis, *plus* the local phenomena due to uterine displacement; with general treatment, and the employment of a pessary for a time, recovery took place. After three years, the patient suffered from a relapse. Four leeches were ordered to be applied to the posterior part of the uterus, to be repeated three times at intervals of three days; after the second application of the leeches, not only were the tenderness and engorgement much relieved, but the uterus was in a much more normal position; after the third application menstruation appeared, and a week subsequently the uterus had resumed its normal position. Dr. M. considers this case particularly valuable "because only one remedy was employed throughout the treatment; and I am therefore, I think, fairly entitled to consider that the issue of the case, which was unmistakably successful, was due directly to the effects produced by that one remedy. And, further, if this be so, it follows, I think, as a logical conclusion, that the pathology of the affection must be intimately related to the known effects producible by the action of the remedy in question. In other words, that, if relief follows depletion without any other treatment, engorgement must be the main if not the only cause of the symptoms complained of. Hence we see how the particular affection is developed, and how its cure may best be brought about." "It might be asked, perhaps," he adds, "why not have replaced the uterus at once, applied a pessary, and thus have cured the case? My answer is, that I have again and again seen this treatment adopted, and with marked aggravation of the suffering."—*Lancet*, Aug. 6, 1870.

75. *Perforation of the Uterus by a Uterine Sound.*—Dr. Hoening relates (*Berl. Clin. Wochenschr.* 1870) the case of a woman, twenty-eight years of age, who thrice, after short intervals, was delivered of twin children, at the full term, and twice aborted. On examination by means of the sound, of the cavity of the uterus, the instrument entered to the extent of 10½ cm.; the handle resting at the entrance to the vulva while the opposite, knobbed extremity could be felt nearly on a level with the umbilicus. To the touch externally, the uterus appeared to be very soft and perfectly movable, but not at all enlarged. It was evident the sound had not passed into either of the Fallopian tubes, inasmuch as its extremity was pointed directly to the centre of the fundus uteri; besides, it is scarcely possible, under any circumstances, that the uterine entrance of the tubes, much less the tubes themselves, could be so far enlarged as to admit the entrance of the sound. Besides, the tubes at their fimbriated extremity are directed backwards, and so bound down by the lateral ligaments that it would be impossible to raise either of them up by the introduction of the sound so as to enable the point of the latter to be felt in the vicinity of the umbilicus. Dr. H. concludes, therefore, that in the instance he refers to the sound had actually perforated the wall of the uterus, a thing that could readily occur when this had become atrophied and softened during the puerperal period. There may even, he remarks, have existed an opening through the wall of the uterus at its fundus, caused by the formation and rupture of an abscess in child bed. That this, however, was not the case in the instance related may be inferred from the entire absence of any of the products of inflammation. Dr. H. believes that the first of the cases reported by Hildebrandt may be set down as one in which perforation of the uterine walls was caused by the use of the sound.—*Centralblatt. f. d. Medicin. Wissenschaften.*, May, 1870. D. F. C.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

76. *Chloral as an Antidote to Strychnia.*—Dr. J. H. BENNETT and his assistant in the physiological laboratory, Dr. MCKENDRICK, showed an interesting experiment illustrating the power of chloral in neutralizing the poisonous effects of strychnia. After briefly detailing the few observations already published on this subject by Groves, Richardson, Verneuil, and Liebreich, Dr. Bennett stated that, so long ago as May 19th, Dr. McKendrick and he had shown that chloral had the power of neutralizing the effect of an otherwise poisonous dose of strychnia; and that since that date the experiment had been frequently repeated by them on rats, rabbits, etc. Richardson had tried it, but unsuccessfully; while Liebreich had tried the opposite experiment, and found that strychnia was an antidote to chloral. Two rabbits were then taken, each weighing about three pounds and a half, and equal in strength. One hundredth of a grain of strychnia, which had been proved to be a poisonous dose to the rabbit, was then injected under the skin of both rabbits; but to the second rabbit was also given an injection under the skin of fifteen grains of chloral in solution. In ten minutes the first rabbit began to have convulsive twitchings of the legs; in thirteen minutes it became frisky and ran about the table; in sixteen it took two or three severe tetanic spasms; in eighteen it died. The second rabbit was lethargic in ten minutes—sound asleep in a few more. In sixty minutes it woke up with a spasm or two; and by the end of the meeting—135 minutes—it seemed sleepy, but otherwise quite well.—*British Medical Journal*, August 6, 1870.

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77. *Experiments upon Monkeys with Strychnia.*—The Nos. of the *Indian Medical Gazette* for December, 1869, and May, 1870, contain some very interesting results of experiments, by THEOBALD RINGER, on monkeys with strychnia.

The "lungoor" (*Presbytis entellus*) seems to be proof against strychnia; five grains to an animal of that species not only had no effect but was eaten apparently with relish.

When, however, an attempt was made to induce another species of monkey, the "pouch-cheek" (*Inuus rhesus*), it could not be induced to eat it, and, when forced to swallow some, death resulted.

It is curious further that the "lungoor," which proved proof against strychnia, succumbed to a few grains of cyanide of potassium, which had, however, to be administered by force, as the animal could not be induced to take it, though disguised in every possible way. This confirms the statement that a monkey will never eat anything that is poisonous to it.

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78. *Blood-Pictures.*—Dr. DAY, of Geelong, Australia, the improver of the guaiacum-tests for blood and other animal fluids, confirms the discovery of Neumann, that the picture or network formed by the human blood can be distinguished under the microscope from that which is formed by the blood of other animals. He says he has repeated the experiment, which is "wonderfully simple," almost every day for the last two months, with invariable success. A small drop, not a mere speck, of the blood is to be placed on a microscope slide, and carefully watched, at a temperature of 10° or 12° Reaumur (=54.2° to 59° Fahr.), until the picture or network formed by its coagulation is developed. Human blood speedily breaks up into a "small pattern" network: the blood of other animals (calves, pigs, etc.) takes a longer time, and makes a larger pattern; but the blood of every animal seems to form a characteristic "picture." Dr. Day has examined the blood of calves, pigs, sheep, rabbits, ducks, hens, several kinds of fishes, etc., as well as that of man, and has found the results to be trustworthy and constant.—*Brit. Med. Journ.*, Aug. 6, 1870.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On the Application of Carbolic Acid as a Local Anæsthetic in Surgical Operations. By J. H. Bill, M. D., Surgeon U. S. Army.—In conducting some investigations on the action, etc., of carbolic acid, the writer has made the following observation, which, as they seem to be of practical importance, he communicates in advance of the other results :—

All who have handled this substance must have noticed the tingling sensation (not unlike that produced by aconite) in the finger tips and other parts touched by the acid, which presently passes into a greater or less anæsthesia. On trying to determine the amount of this anæsthesia with an ordinary æsthesiometer it was found not only impossible to distinguish two points, however widely separated, but even to recognize the presence of one.

The prick of the point was not felt at all as pain, nor was an incision productive of uneasiness. The experiment was, therefore, extended thus: The radial side of the writer's left forearm was covered with a cloth soaked in a saturated solution for a half hour, then a streak was traced over the course of the radial artery with a camel's hair brush dipped in acid liquefied by one-twentieth bulk of water. This streak extended from the styloid process to near the elbow, and after a few minutes was rubbed off. An incision was then made with a common scalpel from a point about two inches above the styloid process towards the internal condyle for five inches, occupying as near as possible the middle of the streak made with the brush, and extending down to the fasciæ investing the flexor muscles (superficial) of the thumb and fingers, so that at its lower extremity the radial artery was exposed and could have been ligated. This incision was unattended with pain, save where nerves distributed to or passing over the muscular fasciæ were pricked or divided, and even in this case the pain was not at all unbearable. *The incision of the integument was painless,* and the writer would have been unconscious of the injury save from the sensation communicated to his hand holding the knife as it was drawn through the tissues. This observation or experiment was made nearly a year ago. It was applied practically at once to all minor cutting operations. The writer has not incised a felon or bubo since without successfully employing this method for preventing or greatly mitigating pain. Many cases could be given, one will suffice. David Harris, of Vancouver, applied with his second finger of the left hand highly inflamed from a felon, the parts much injured by burrowing of pus. A previous felon had been treated on another finger a few months before, and the requisite incision had given him exquisite pain; the patient therefore apprehended great suffering from any operation on the finger now diseased, and begged for chloroform. However, the finger was soaked for fifteen minutes in warm water containing three per cent. of carbolic acid, dried, and then a brush, dipped in the concentrated acid, drawn over the finger in the course of the intended incisions. These, two in number, were then made, using a thin edged

scalpel by a slow sawing motion, allowing only the weight of the knife to make the cut. The patient stated that he had suffered no pain, or not more than would have resulted from handling the parts. The parts healed at once. Sometimes it is necessary after making an incision nearly through the integument, if sensibility becomes apparent, to brush out the wound made with some liquefied acid before extending the incision deeper. This was necessary in a palmar abscess treated by this method without pain. The writer has excised a small tumour partly by this plan. Buboes have been operated on painlessly, and in short, the writer can recommend the plan in any cutting operation where no dissection of the skin is involved, and where all the pain results from the cutting of the skin. It is hoped that it will be of special service to those who are compelled to operate without an assistant. The writer was thus compelled this summer to remove from his right hand, by an incision of over two inches in length, a large wooden splinter which had been thrust through the palmar fascia, and had lodged under the tendon of the lumbricalis of the index finger. It was done without pain, save where a nerve was divided. The incision healed without scar.

These facts, which the writer believes he is the first to point out, have theoretical relations of great interest which may be discussed in a future paper.

FORT VANCOUVER, W. T.

[It is proper to state that the above article is a portion of a very elaborate paper on Carbol, received several months since for publication in the No. of this Journal for July last, and which was returned, for revision, at the author's request. The great remoteness of the post at which he is stationed has so retarded communication that we did not receive back the part now published until too late for insertion in its appropriate place.—ED.]

Hydrate of Chloral as an Anæsthetic in Labour. By W. J. C. DU HAMEL, M. D., of Baltimore.

At 4 o'clock P. M., early in this month, I was called to see a lady in labour with her second child. The previous labour, three years ago, had been a tedious one, and the physician in attendance had finally to deliver her with the forceps. I found her in active labour, the os uteri dilating; and a few hours afterwards the os had become well dilated and the head presented; pains active. A few hours later very little progress had been made though the pains were still vigorous, and she now insisted on the instruments being used, saying she *could not be delivered* otherwise. I declined to do so, but gave her twelve grain doses of hydrate of chloral every hour for *three hours*. It proved to be a most excellent anæsthetic in this case, and free from the dangerous effects of chloroform. After the *second dose* there was considerable *relaxation* of the parts, and in four hours after the first dose she was delivered of a fine child without the use of instruments, and with *very little pain*. I regard the chloral as a valuable agent in severe and tedious labours.

BALTIMORE, MD., Sept. 8, 1870.

[These observations are confirmatory, to some extent, of those of Mr. Lambert, see p. 565.]

Rupture of the Stomach and Spleen from a Fall, without External Evidences of Injury. By I. SOMERS BUIST, M. D., Physician and Surgeon in charge of City Hospital, Charleston, S. C. (Read before the Medical Society of South Carolina.)

I was called on the morning of the 29th of March, 1870, by the request of the coroner, to view the body of A. H., and perform the *post-mortem*, as the cause of his death could not be determined, and a jury of inquest had been summoned. The following history was obtained: The deceased had been walking on the trestle of the railroad and slipped, falling about twenty feet, his fall being broken, by a piece of timber, about ten feet before reaching the ground, his left shoulder impinging upon the same. He suffered considerable pain at the time, and, from the best accounts, *fainted away*, but soon rallied sufficiently to be removed, and, upon the passing of the up train, was brought to the city. Feeling very weak, he was taken to his home in a wagon, and, upon arriving, was able to sit up and speak connectedly and rationally. Complained of nothing more than soreness in the limbs and a fulness about the stomach. He was soon placed to bed, and the usual means adopted to relieve pain. About 1 A. M. he was found dead in bed, having vomited a small amount of blood, as was seen upon examining the bedclothes.

A close inspection of the body could detect *no indication of external injury—no bruises, contusion, or any effect of violence.* The abdomen was considerably distended, and, in fact, was the only abnormality that could possibly direct attention to any particular region of the body as the seat of an injury. Upon opening the same, about two quarts of liquid blood were discharged; no clots or shreds discovered. The whole surface of the peritoneum was in a state of active congestion, red, and inflamed; and so of the peritoneal covering of the intestines. Upon drawing these aside and bringing the stomach into view, the following was found to be its condition: Empty and flat, the upper mucous walls lying in contact with each other; the cardiac extremity and body pale and flabby, its pyloric end congested and floating in a large semi-fluid clot. Upon examining this extremity, a rupture about five inches in length was discovered upon the under surface, extending into the duodenum. A large clot of solid fibrin filled the rupture. No other evidence of injury could be found in this organ.

The spleen had a rupture about two inches in length and one-half inch in depth. All other organs were intact and natural.

At the time of the receipt of the injury the subject had not eaten for several hours, and nothing like undigested food could be found in or about the abdominal cavity. From the large masses of blood in the abdomen, and the length of time that life lasted after receipt of the injury (about fourteen hours), the return to consciousness, and partial restoration of strength, we may infer that during the so-called fainting the clot had formed, thus arresting hemorrhage for the time; but that finally, the clot becoming dislodged, death resulted from internal bleeding.

[A case equally as remarkable as the above, in which the intestines and abdominal viscera were cut through by the passage of a railway train over the body, with scarce any injury to the abdominal walls, is recorded in the *British Med. Journ.*, Aug. 20, 1870. See No. of *Med. News and Library* for Oct. 1870.—ED.]

Complete Division of the Trachea and Wounding of the Œsophagus in attempted Suicide; Recovery. By WILLIAM R. VAN HOOK, M. D., of Illinois.

On the 27th of March, 1870, I was called to see J. R., a robust Irish railway hand, æt. 50, who, in a temporary fit of despondency, had attempted suicide by cutting his throat with a razor. When I saw him, a few minutes afterwards, he was lying on the bed where he had slept the preceding night, with his breast covered with blood, a large gaping wound in the neck, and breathing with great difficulty. On inspection, I found the trachea completely severed, having been cut through between the cricoid and thyroid cartilages, and a free opening made into the œsophagus. The upper portion of the windpipe was retracted greatly, while the inferior portion protruded, showing its entire circumference each time the man coughed, which was nearly constant, from the blood pouring into the lungs. The patient made signs for water, a glass of which was given him; he drank it convulsively, but the water poured out at the wound in the neck as rapidly as he drank it, causing, of course, great strangulation and coughing. The paroxysm of coughing having somewhat subsided, the upper portion of the trachea was drawn down with a tenaculum, and the organ sewed together with silver-wire stitches, leaving a free opening anteriorly. There being no depression of the pulse, and no need of stimulants, J. R. was now left, with his head slightly inclined to his chest, for three hours, in order to give time for the bleeding to cease; to facilitate which, the doors were left open and a free circulation of air permitted. The integuments were then brought together with the wire, an opening being left directly opposite the one in the windpipe, to give free outlet to the discharges. His chin was now approximated to his breast, being held there by a muslin cap fitted to the head with straps fastened to a broad bandage around the chest. The œsophagus was not disturbed, believing (as the result proved) that the position in which his chin was confined would bring the edges of the wound in that organ into apposition. Cold water dressings were ordered to the wound, and morphia placed upon his tongue, to allay cough. Small lumps of ice were given him to hold in his mouth, to relieve an intolerable thirst, which, when melted, he removed with a cloth. The temperature of the room was now raised to eighty degrees, and ordered to be kept at that heat, which was done for several days.

He did well until evening, when I found him covered with a cold, clammy sweat, with a rapid pulse, and a deathlike pallor of his skin. An injection of whiskey was ordered, and stimulating cataplasms applied to the extremities, after which the paroxysm gradually wore off.

March 28. Passed, as his wife said, a very good night, with only occasional coughing spells; his bowels moving of their own accord. His breathing this morning was not hurried, and pulse normal. A raw egg was beaten up and a spoonful given him, a trace of it showing at the wound; it not causing much cough, the remainder of it was given him, and another egg ordered at night.

29*th.* Complained so much of hunger, that I passed a small tube into his stomach and injected with the stomach-pump six or eight ounces of soup. The tube caused so much irritation of the windpipe, that I did not dare use it again.

He did well up to April 2, when, in a paroxysm of coughing, he tore the stitches in the outer wound all out, but fortunately did not disturb the sutures in the windpipe. The external wound was sewed up as at first.

On the twelfth day the sutures came away from the windpipe, the egg by this time having ceased to appear at the wound (he having been fed morning and night on a raw egg), and the opening in the windpipe being nearly healed, which did close up the next day.

From this time on the wound continued to heal, warm water dressings covered with oil-silk having been used after the fourth day.

May 14. Is walking about, the wound entirely healed. He has a stricture of the œsophagus which does not permit him to use solid food, which will require appropriate treatment.

It is surprising that he did not cut the large bloodvessels in his neck adjacent to the trachea, and is only to be accounted for by the fact of his having taken hold of the trachea, and drawn it well forward as he cut it through.

DOMESTIC SUMMARY.

Glycogenic Function of the Liver.—Our readers have been made familiar with the remarkable experiments of Claude-Bernard (see number for July, 1857, p. 203), demonstrating the glycogenic function of the liver; and also with those of Dr. Pavy (see number for April, 1859, p. 521), which led him to deny that the liver during life contains sugar, and that its presence is due to a post-mortem change; and, finally, with the experiments of Dr. A. Flint, Jr. (see number for April, 1869, p. 569), undertaken to reconcile these discordant results, and from which he came to the conclusion, that during life the liver contains only glycogenic matter, and no sugar, because the great mass of blood which constantly passes through that organ washes out the sugar as fast as it is formed; but after death, or when the circulation is interfered with, the transformation of glycogenic matter into sugar goes on; the sugar is not removed under these conditions, and can then be detected in the liver.

Dr. W. T. Lusk, Professor of Physiology in the Long Island Medical College, has recently repeated the experiments of Bernard using special precautions and displaying great ingenuity in his investigations, and his results seem to fully confirm the accuracy of Bernard's conclusions. In a valuable paper (*New York Med. Journ.*, July, 1870), he has given an account of his investigations which authorizes him, he thinks, and we believe justly so, to adopt the following conclusions:—

1. That the blood of the general system in carnivorous animals confined to a nitrogenous diet contains appreciable quantities of glucose, not only during the period of digestion, as admitted by Bernard, but even in cases where animals have been deprived of food for a considerable period of time.

2. That the blood of the right side of the heart contains from a quarter to half a grain of glucose per fluidounce, under strictly physiological conditions.

3. That the quantity of glucose in the right side of the heart is from two to four times greater than that found under corresponding circumstances in the jugular vein.

4. That this excess argues a by-no-means insignificant amount of sugar in the pure hepatic blood, before it has become largely diluted with the comparatively non-saccharine fluids of the venæ cavæ.

5. That we are forced to admit the fact of sugar-formation by the liver, though we fail to detect the presence of sugar in the liver-tissue when, after death, the fermentation of the glycogenic matter is prevented."

It is a question of the utmost practical importance, as involving the origin of diabetes, to determine whether or not, in view of all the facts, we are justified in assuming that the liver is the sole source of the sugar found in the economy, and Professor Lusk thinks we are not. He says: "The causes of diabetes are various, and the source of the sugar probably not confined to a single organ.

At the same time the liver is to be regarded as the most active agent in sugar-production. At times it may be the indirect cause of diabetes, by its failure to fulfil its function, of arresting the passage of saccharine principles through it. We are to regard the labors of Bernard, Pavy, and Bouchardat, as severally adding to the sum of our knowledge of diabetes. There is no reason to suppose that the truth lies in any one exclusive theory. The problem is unquestionably a complicated one; and we must be content to get our knowledge piecemeal, until the time shall come when we shall fairly hold in our hands the key to the mystery of nutrition."

—

Treatment of Croup.—Dr. FORDYCE BARKER gives (*American Journal of Obstetrics*, May, 1870) the following as his treatment of croup:—

"1st. I always commence the treatment by an emetic of turpeth mineral (hydrargyri sulphas flava), in doses of from three to five grains, according to the age of the child. If it does not act in fifteen minutes, I direct a second powder to be given. This, however, is rarely necessary, and I have never known a second dose to fail to act in a few minutes, except in one instance, which I will mention hereafter. My reasons for preferring this to all other emetics in croup are the following: It acts much more promptly and efficiently than ipecac or alum; it is tasteless and much more easily administered than either; it does not exhaust and depress the vital power like antimony. It is equally prompt in its action with the sulphate of copper, while it is much more effective as a revulsive and sedative. I think the active emesis from the turpeth mineral accomplishes the following results much more speedily and effectually than any other agent. It depletes the mucous membrane by an abundant secretion of mucus which is thrown up; it removes from the larynx, by the forced expiration which it causes, any albuminous or fibrinous exudation which may be there in a diffluent state, and which, by remaining, may become subsequently pseudo-membrane; it acts as a powerful revulsive, and thus diminishes the capillary circulation in the trachea and larynx; and thus it becomes a most effective agent in arresting the inflammatory process."

Dr. B. regards it as very important that this emetic should be given immediately on the appearance of the symptoms which threaten croup. * * *

"If I find evidence of catarrhal laryngitis simply, then I rely mainly on opiates, which I regard as almost the specific for acute catarrh of the respiratory apparatus, whether it occurs in infantile or in adult life. I direct full doses, proportionate to the age of the child, of Tully's powder, or the Dover's powder, or the 'Brown Mixture' of the U. S. Dispensatory. But I watch such a child closely, visiting it a second time before evening. But if, on my morning visit, I find the child with a quick pulse, hot skin, somewhat hurried breathing, and an occasional ringing cough, but with no thoracic râles, I direct that he shall be kept quiet in bed, comfortably covered, but not with too many clothes, and I prescribe the veratrum viride, in one or two drop doses, according to the age of the child, as for example in the following formula: R.—Syr. simp. ℥j; aq. puræ, ℥vj; spts. ether. nitros. ʒij; tinct. verat. viride, gtt. 16–30.—M. S.—A teaspoonful every 2d hour.

"I visit the child at least as often as every 8th hour, and increase or diminish the dose, according to the effect of the medicine on the pulse. I never am satisfied until I find the pulse below 80 per minute, and I then continue the veratrum in half the dose that I found necessary to bring it down to that point. My experience in the use of the veratrum viride now dates back more than twenty-five years, and I have never found it fail to reduce the pulse of irritation or inflammation (it will not reduce the rapid pulse of exhaustion), and I have never found the slightest danger or uncertainty in its use, as I watch its effects closely. If thoracic râles, hurried and laboured respiration, and other symptoms indicate that the disease is extending downwards, I then substitute for the above prescription something like the following formula, of course varied according to the special indications of the case: R.—Mist. acaciæ, syr. tolu, āā ℥j; ammoniæ carb. ʒss; tinct. verat. viride, gtt. 16–30.—M. S.—A teaspoonful every 2d hour.

"It has sometimes occurred that I have found evidence of increasing laryn-

geal and tracheal obstruction, and I have in consequence repeated the emetic of the turpeth mineral on the second or third day; but I have never had occasion or deemed it well to repeat it a third time. Several times, a few hours after the emetic, but never during its immediate action, the child has thrown off more or less detached portions of membrane. In two instances I have had perfect casts of the trachea, with its bifurcation and some of the primary branches of the bronchi thrown off."

Dr. B. acknowledges his indebtedness to Dr. Jacobi for acquainting him with the great value of quinia in large doses in some of the diseases of the respiratory organs of children, and says:—

"I have found it of great service in some cases of croup in the advanced stages, when the respiration is hurried and irregular, the paroxysms of cough less marked, the intermissions less distinct, and the cough husky instead of ringing. I have substituted for the last formula the following: R.—Mist. acaciæ, syr. senegæ, āā ℥j; quiniæ sulph., ammoniæ carb., āā ʒss.—M. S.—To be well shaken. A teaspoonful every 4th hour.

"When the croup is complicated with lobular pneumonia I usually give the quinia separately, four or five grains three times a day, while the little patient takes the last of the prescriptions containing veratrum viride."

Dr. B. claims to have had extraordinary success in his treatment of croup by this method.

—

Sulphites in Phlegmonous Angina.—G. G. Tyrrell, L. R. C. S. I., expresses (*Pacific Med. and Surgical Journ.*, August, 1870) the conviction that he has "discovered in the sulphites a certain prophylactic against, and a frequently successful agent in the cure of, certain diseases affecting the throat, more especially in that common and most troublesome complaint known as phlegmonous angina, acute tonsillitis, or quinsy."

Believing that tonsillitis is but the local effect of a general poison, he determined to give the sulphites a trial and push their administration so as to get their constitutional effect, if possible, before the zymotic poison had full possession of the system. He first tried the article in his own case. He says, "In April, 1868, I was seized with the usual symptoms of impending disease—lassitude, chilliness alternating with flushes of heat, coated tongue, pain in limbs, etc. Soon the dryness and constriction of the throat were perceived, with pain on deglutition, and that horrible feeling of a foreign body in the pharynx, which in vain you try to dislodge. I now knew that my old friend, acute tonsillitis, was about to develop itself, as I was a victim to such attacks, and had almost made up my mind to put in my regular two weeks of sickness like a philosopher. Upon examining my throat, I noticed both tonsils swollen, their mucous crypts filled with exudation, the velum palati congested, the back of the pharynx a vivid red colour, and dry. I dreaded the suffering appertaining to a tonsillitic abscess, and finally came to the conclusion that with my ideas upon the zymotic origin of the disease, mine was just the case to ascertain whether there was any virtue in the sulphites or not. Accordingly I ordered a mixture containing thirty grains of bisulphite of soda to each dose of a tablespoonful, which was to be taken regularly every hour. I commenced at 12 noon; at 8 P. M. I felt decidedly better, and could swallow with but little inconvenience; the tonsillitic exudation had disappeared, and the vivid redness of the velum and pharynx was subsiding. I continued the medicine regularly throughout the night, and at 8 next morning almost all traces of the disease had vanished. This result was so striking, and so exceedingly gratifying to me that I determined to pursue my investigations further."

Several other cases are related in which the remedy seemed to be equally beneficial.

—

Traumatic Tetanus successfully treated by Calabar Bean and Hydrate of Chloral.—Dr. Thomas G. Duncan records (*Am. Practitioner*, Aug. 1870) a case of this, and expresses the conviction that both articles contributed to the result, the Calabar bean by its power of producing muscular relaxation, and the hydrate of chloral by causing quietude and alleviating convulsions.

In the September number of the same journal Dr. PRESTON PETER records a case in which the same articles failed to arrest a fatal termination; and another is reported by Dr. EDWARD RICHARDSON in which Calabar bean was administered with like want of success.

Sebaceous Cysts of the Eyelids.—Dr. J. J. CHISOLM recommends (*Baltimore Medical Journal*, May, 1870) the following as a simple and efficacious method for removing cystic tumours from the eyelids: "A Desmarres ring forceps is used as a clamp upon the lid, to shield the ball of the eye from injury, to fix the tumour, and prevent annoying oozing of blood. Under this ring-pressure a small opening is made into the cyst, through which its contents are squeezed out. The end of a small silver probe, dipped in nitric acid, is then passed into the cavity, is made to pass over the epithelial lining surface, and is withdrawn. Usually, in its passage into the cavity of the tumour, it cauterizes sufficiently the lips of the incision to prevent any oozing of blood when the clamp forceps is removed."

[That this is a most simple and efficacious mode of removing such tumours we can certify from long experience; but we have been in the habit for many years of introducing into the cyst through the puncture a very small cylinder of sulphate of copper with a conical end (see *Lawrence on Diseases of the Eye*, edited by Hays, Philadelphia, 1854, note, p. 176) instead of the probe dipped in nitric acid. We have also used a probe the extreme end of which was armed with nitrate of silver by dipping it in that article in a melted state. We may here remark that we have had our Desmarres ring forceps made to close with a wedge-shaped slide instead of the screw, which is a convenience, as it can be held and fastened with one hand, and we think it an improvement.—ED.]

On the Simultaneous Occurrence of a Soluble Lead Salt and free Sulphuric Acid in Sherry Wine; with Observations on the Solvent Action of Alcoholic Saline Solutions upon Sulphate of Lead.—The *Proceedings of the American Academy of Arts and Sciences* (October 13, 1868) contains an interesting paper on this subject, by Prof. F. H. STORER. The author was called on by a wine-merchant "to examine a sample of pale sherry taken from a cask which had been returned to him, on the certificate of a chemist that the wine contained lead. The sample in question was perfectly transparent and clear. There was nothing in the appearance or taste of the wine to indicate the sophistication to which it had really been subjected.

"On submitting this sherry to chemical analysis, I found not only that it held in solution a considerable proportion of lead, but also a decided trace of free sulphuric acid, besides an abundance of the same acid combined with some akaline base. When a portion of the wine was evaporated in contact with slips of paper, the latter soon became crumbly and friable.

"Regarded merely from the chemical point of view, without reference to its manifest bearing upon questions of hygiene and jurisprudence, the simultaneous occurrence of a lead salt and of free sulphuric acid in alcoholic solution, is a fact sufficiently important to merit close attention."

Prof. S. was led to institute a series of experiments, to determine the manner in which the lead was held in solution in wine, even in the presence of free sulphuric acid.

"These experiments," he states, "show clearly that very considerable quantities of sulphate of lead can be held in solution by weak alcohol charged with various salts. It may, therefore, reasonably be inferred that wines sometimes retain lead in solution, in consequence of this action of the acids and salts peculiar to wine upon lead compounds ignorantly employed to correct acidity."

INDEX.

A.

Abdominal muscles, spasmodic action of, simulating pregnancy, 288
Abscess, renal, 280
Accommodation, mechanism of, 563
Acetic ether as an anæsthetic, 137
Adams, chloral, 240
———, operation for bony anchylosis of hip-joint, 557
Addison's disease, pathology of, 244
Ahlfeld, duration of gestation, 566
Aitken, danger of using tangle tents, 568
———, introduction of uterine tents, 569
Alcohol, experiments on the effects of, 530
Allbutt, syphilitic disease of nervous system, 205
———, use of sarsaparilla in syphilis, 255
Allen, localization of diseased action in osseous system, 401
Alopecia areata, 122
Ametropia, determination of degree of, 414
Amputation, results of, 202, 552
———, statistics of, at Pennsylvania Hospital, 313
Anæsthesia, production of rapid general, 241
Aneurism of orbit, 36, 46
———, statistics of subclavian, 196
Angina pectoris, 203
———, sulphites in phlegmonous, 579
———, ulcero-membranous, 129
Ankle-joint, excision of, 212
Anosmia, 537
Antrum, medullary carcinoma of, 458
Aphasia, 127, 207, 247
———, notice of Bateman on, 496
Apoplexy, intra-uterine meningeal, 278
Archiv für Dermatology, notice of, 521
Arsenic in diseases of the stomach, 548
Arthritis, rheumatoid, 51, 151
Ashhurst, dislocations in children, 445
———, excision of elbow, 148
———, excision of knee-joint, 448
———, mammary cancer, 456
Ashton on Diseases of Rectum, notice of, 236
Assmann, hæmophilia, 539
Astigmatism, changes in, under influence of accommodation, 266
Atlee, cases of ovariotomy, 428

B.

Bader, appearance of eye in glaucoma, 201
Baikow, bone from medulla, 529
Balsam of Peru in itch, 255
Barker, treatment of croup, 578
Barnes, Obstetric Operations, review of, 165
———, treatment of post-partum hemorrhage, 491
Barwell, strychnia hypodermically in local paralysis, 255, 547
Basham on Renal Diseases, notice of, 228
Bateman on Aphasia, notice of, 496
Bell, cancer of pancreas, 150
——, recovery from pyæmia, 259
——, tumour in cerebrum, 147
Belladonna in constipation, 254
Bennett, chloral an antidote to strychnia, 572
———, ——— in phthisis, 252
———, pressure treatment of carbuncle, 277
Berger, aphasia, 247
Bert, action of chloroform on blood, 528
Bibliographical Notices—
——— Archiv für Dermatology, 521
——— Ashton, Diseases of the Rectum, 236
——— Basham, Renal Diseases, 228
——— Bateman on Aphasia, 496
——— Blache, Diseases of the Heart in Children, 227
——— Chambers, The Indigestions, 233
——— Clark, Visceral Lesions, 231
——— Coulson, Syphilis, 229
——— Da Costa, Medical Diagnosis, 506
——— Darby, Liquid Glass as a Surgical Dressing, and Hair as a Suture and Ligature, 511
——— Davies, Orifices of the Heart, 503
——— Dispensatory of the United States, 221
——— Dobell, Progress of Medicine, 237
——— Elam, A Physician's Problem, 238
——— Finlayson, Normal Temperature in Children, 520
———, Temperature of Children in Phthisis and Tuberculosis, 520
——— Flint, Chemical Examination of Urine, 220
——— ———, Diseases of the Heart, 219
——— Gray's Anatomy, 236
——— Guy's Hospital Reports, 191
——— Heath, Practical Anatomy, 526
——— Holthouse on Hernia, 501
——— James, Chloroform *versus* Pain, 523
——— Kinloch, Sarcomatous Fibroma of Upper Jaw, 510
——— Knapp, Intraocular Tumour, 512
——— Lebert, Bronchitis, 221
——— Lee, Pathology and Surgery, 498
——— Lutz, Epidemic Diphtheria, 226
——— MacCormac, Amputation through the Knee-Joint, 511

Bibliographical Notices—
——— Norton, Infantile Diseases, 505
——— Paget, Surgical Pathology, 500
——— Politzer, Membrana Tympani, 233
——— Rogers, Summer Mortality in the Cities, 519
——— Seguin, Idiocy, 518
——— Smith, Etiology of Albuminuria, 517
——— Spinzig, Variola, 524
——— St. George's Hospital Reports, 203
——— Transactions of American State Medical Societies, 214, 507
——— ——————— Obstetrical Society, 484
Bill, carbolic acid as an anæsthetic, 573
Birkett, results of amputation, 202
Bismuth, use of, in diarrhœa of children, 255
Blache, Diseases of Heart in Children, 227
Blackman, sequel of case of exsection of inferior dental nerve, 373
Bladder, puncturing above the pubes, 560
Blanford, food in nervous disorders, 544
Blatchly, fibro-cystic disease of ovary, 281
Blood, physiology of, 240
——— pictures, 572
Bone and joint-disease, on chronic, 210
——, production of, from medulla, 529
Bozeman, vesico vaginal fistules, 101, 422
Brain, abscess of, 448
Braune, latent intermittent fever, 247
Brinton, gunshot wound of lung, 435
Bromide of lithium, 443
——————— potassium, 244, 381
——————————— in ague, 548
——————————— in diabetes, 282
——————————— in sick headache, 282
——————————— in somnambulism, 548
Bromides in epilepsy, 126
———, ulceration from use of, 440
Bronchitis, croupal, 246
———, treatment of capillary, 378
Brown, capillary bronchitis, 378
Brunton, twins, 488
Bryant, diseases of upper and lower jaws, 199
———, torsion, 200
Buist, rupture of stomach without external evidence, 575
Bumstead, syphilization, 17
Burrall on nervous symptoms with excess of urea, 53

C.

Cancroid of vagina, erectile, 289
Carbolic acid as an anæsthetic, 534, 573
———————, internal use of, 195
———————, poisoning by, 275
Carbonic acid, physiological action of, 528
——————— oxide, absorption of, by lungs, 527
Carbuncle, cause of gravity of, 563
———————, treatment of, by pressure, 277
Cephalotribe, delivery by, 484
Cerebrum, tumour in, 147
Cervix uteri, dilatation of, 570
Chambers on the Indigestions, notice of, 233
Chauffard, phenic acid in smallpox, 256
Cheadle, exophthalmic goitre, 207
Chisolm, after-treatment of fistula in ano, 284
———, sebaceous cysts of eyelids, 580
Chloral, action of, 240, 241, 283
——— as an antidote to strychnia, 572
——— in cerebral disease, 251
——— in epilepsy, 256
Chloral in fever, 250
——— in insanity, 546
——— in paralysis, 546
——— in parturition, 565, 574
——— in phthisis pulmonalis, 252
——— in puerperal convulsions, 272
——— in tetanus, 260, 579
——— for relief of pain, 260, 261
Chloroform, action of, on blood, 528
Cinchona alkaloids, experiments with, 243
Clark on Visceral Lesions, notice of, 231
Clarke, angina pectoris, 203
———-, chloral, 283
———, ——— in cancer, 260
Cleemann, dislocation of vertebra, 141
Clousten, chloral in cerebral diseases, 251
College of Physicians of Philadelphia, Transactions of, 127, 435
Conium, mode of action of, 534
———-, reliable preparation of, 283
Connecticut Medical Society's Transactions, notice of, 217
Conner, Meckel's ganglion, 359
Constipation, therapeutics of chronic, 549
Consumption, causes of pulmonary, 206
Cooke, operation for fistula in ano, 560
Coote, lithotomy, 965
Cornea, Calabar bean in suppuration of, 563
Coulson on Syphilis, notice of, 229
Cowell, retinitis, 209
Crosby, extirpation of ovarian tumour followed by pregnancy, 287
Croup, 460, 578
Cumming, stethoscope a means of ascertaining the sex of the child, 274

D.

Da Costa, Medical Diagnosis, notice of, 506
———, ulcero-membranous angina, 129
Darby, Hair as a Suture and Ligature, and Liquid Glass as a Surgical Dressing, 511
Davies, bromide of potassium, 244
——— on the Area of Heart Orifices, 503
Day, blood-pictures, 572
De Barry, rupture of heart, 248
Delpech, a new vesicant, 535
Demarquay, reproduction of divided tendons, 258
———, resection of humerus for necrosis, 265
Depaul, vaccination, 536
Diabetes, bromide of potassium in, 282
———, opium in treatment of, 194
Diarrhœa, use of bismuth in, 255
Dickinson, lactate of iron, 535
Dislocations in children, 445
Dispensatory of United States, notice of, 221
Dittell, puncturing bladder above pubes, 560
Dobell on Progress of Medicine, notice of, 237
Dobrowsky, changes in astigmatism under influence of accommodation, 266
Donkin, milk diet in diabetes, etc., 253
Dropsy, essential, 551
Duckworth, hæmoptysis, 547
Duer, epithelial cancer of hand, 144
Dufour, luxation of lens, 563
Du Hamel, chloral in parturition, 574
Duhring, alopecia areata, 122
Duncan, chloral and physostigma in tetanus, 579

Duncan, face presentation, 269
Durac, pre-pubic lymphatic gland, 529
Durham, injections in gonorrhœa, 201

E.

Elam, Physician's Problems, notice of, 238
Elbow, excision of, 148
Elephantiasis Arabum, amputation for, 119
———— of scrotum and leg treated by ligature, etc., 262
Endometritis, fundal, 273
Epidermis, transplantation of, 555
Epilepsy, bromides in, 126
Erysipelas, etiology of traumatic, 258
Eye, bony deposit in, 151
Eyeball, rupture of, with good sight remaining, 268
Eyelids, sebaceous cysts of, 580

F.

Face presentation, production of, 269
Fagge, ichthyosis, 193
———, molluscum fibrosum, 551
Fat, deposit of, in abdominal walls, etc., of women a source of error in diagnosis, 287
Fayrer, elephantiasis of scrotum and leg, 262
Femur, supra-condyloid amputation of, 262
Ferber, convulsive sneezing, 245
Finlayson, hemiplegia in children, 248
————, Normal Temperature in Children, notice of, 520
————, Temperature of Children in Phthisis, notice of, 520
Fistula in ano, after-treatment in, 284
————, new operation for, 560
———, on operations for vesico-vaginal, 100
Flint, bromide of potassium in diabetes, 282
——, Chemical Examination of Urine, notice of, 220
——- on the Heart, notice of, 219
Flint's Physiology, review of, 182
Forbes, excision of portion of lower jaw, 137
Forceps, on the proper use of the obstetric, 71
Forster, syphilis and chancre, 198
Fox, acute tubercle, 206
Frœnum of prepuce, on shortness of, 561
Frantzel, enterotomy in cases of ileus, 558
———, relapsing fever, 540

G.

Galezowski, Calabar bean in suppuration of cornea, 563
Gant, excision of joints for disease, 263
Genital organs, functional derangement of male, 250
Gestation, duration of, 566
Gillespie, poisoning by strychnia treated by bromide of potassium, 421
Glaucoma, ophthalmoscopic appearance of eye in, 201
Glycerine-lymph in vaccinating, 249
Glycogenic function of liver, 189, 577
Goitre, exophthalmic, 191, 207
Gonorrhœa, injections in, 201
Goodell, erectile cancroid of vagina, 289
Gray's Anatomy, notice of, 236
Gréhant, absorption of carbonic oxide, 527
Gross, neuralgia of jaw bones, 48
Guyon, transplantation of epidermis, 555
Guy's Hospital Reports, notice of, 191

H.

Habershon, diaphragmatic pleurisy, 195
————, internal use of carbolic acid, 195
Hæmophilia, 539
Hæmoptysis, 547
Hæmorrhoids, treatment of, by taxis, 559
Halbertsman, retention of menses, 568
Hall, puerperal convulsions, 494
Hand, epithelial cancer of, 144
Hanging, suicidal, 140
Harlan, abscess of vertebræ opening into lung, 446
———, aneurism of orbit, 46
———, bony deposit in eye, 151
———, bug removed from external auditory meatus, 143
Haward, bone and joint disease, 210
Heart, clot in during parturition, 277
———, disturbance of, in renal disease, 246
———, rupture of, 248
Heath, operation for hernia without opening sac, 559
———, position in treatment of hemorrhage, 553
———, Practical Anatomy, notice of, 526
Hebra, rhinoscleroma, 550
Hémey, effect of parturition on pulse, 270
Hemiplegia in children, 248
Hemorrhage, conditions which favour secondary, 257
————, fatal in forty minutes, 492
————, peritoneal adhesions a cause of post-partum, 491
———— ————, position as a means of arresting traumatic, 553
————, treatment of post-partum, 491
Hernia, operation for, without opening sac, 559
Herniotomy after reposition of bowel, 558
Hertz, absence of uterus and ovaries, 280
Hewett, sebaceous tumours of cranial region, 208
———, peritoneal adhesions a cause of post-partum hemorrhage, 491
Hewson, aphasia, 127
Hiccup, mustard in, 549
Hinton, catarrh of tympanum, 199
Hip-joint, operation for anchylosis of, 557
Hodge, synclitism of fœtal head in labour, 325
Hœning, perforation of uterus by sound, 571
Holden, inhalation of nitrous oxide, 61
Holmes, excision of ankle-joint, 212
Holthouse on Hernia, notice of, 501
Hough, renal abscess, 280
Humerus, resection for necrosis of, 265
Hunter, gunshot wound of abdominal viscera, 451
———, inflammatory deposit in testicle, 149
———, rupture of liver, 144
Hutchinson, suppression of urine, 153
Hydatids in bone, 258
Hydrencephalocele radically cured, 409
Hydronephrosis of fœtal kidneys, 494
Hysteric diseases, nature, etc. of, 245

I.

Ichthyosis, 193
Ileus, enterotomy in, 558
Indiana State Medical Society, notice of Transactions of, 508

Inflammation, pathology of, 156
Inguinal glands, enlarged, 148
Intermittent fever latent for months, 247
Intestine, constriction of large, 451, 452
Intra-uterine medication, 285

J.

Jackson, rare disease of joints, 51
James, Chloroform *vs.* Pain, notice of, 523
Jansen, shortness of frænum of prepuce, 561
Jaunaris, mustard in hiccup, 549
Jaw-bones, neuralgia of, 48
——, diseases of the upper and lower, 199
——, excision of portion of lower, 137
Johnston, traumatic tetanus, 112
Joints, on rare disease of, 51
——, excision of, for disease, 263
Jones, variation in acidity of urine, 203
Jordan, enlarged lymphatic glands, 556

K.

Keen, chronic pleurisy, 457
Knee-joint, excision of, 447
——, splint for excised, 139
Kidney, single unsymmetrical, 453
Kinloch, Sarcomatous Fibroma of Upper Jaw, notice of, 510
Knapp, Intraocular Tumours, notice of, 512
Kœnig, traumatic erysipelas, 258
Krishaber, removal of polypus of larynx, 557
Kryptophanic acid, 529
Kuchenmeister, colpeurynter in mal-positions of uterus, 274
Kuster, hydatids in bone, 258

L.

Labour, case of complex, 269
——, induction of premature, as a prophylactic resource, 284
——, mechanical support during, 492
Lactate of iron, 535
Lactic acid in croup, 254
Lambert, chloral in parturition, 565
Larrey, trephining, 261
Laryngitis, syphilitic, tracheotomy in, 132
Leale, intra-uterine meningeal apoplexy, 278
Leared, arsenic in diseases of stomach, 548
Leasure, hydrencephalocele radically cured, 409
Lebert, Bronchitis, notice of, 221
Lee, hysteric diseases, 245
——, Pathology and Surgery, notice of, 498
——, removal of subcutaneous tumours, 554
Lens, luxation of, 563
Leucocythæmia of pregnant women, 274
Leven, the trachea in respiration, 239
——, action of carbonic acid, 528
Liddell, Surgical Memoirs of Rebellion, 174
Lithotomy, 265
Lithotrity, analysis of 184 cases of, 264
Liver, glycogenic function of, 189, 577
——, physiological anatomy of, 186
——, rupture of, 144
Lund, effect of secretion of tears on circulation of brain, 249
Lung, abscess of vertebræ opening into, 446
——, gunshot wound of, 435
Lusk, glycogenic function of liver, 577
Lutz, Epidemic Diphtheria, notice of, 226
Lymphatic glands, treatment of enlarged, 556
—— spaces of eye, 564

M.

MacCormac, Amputation at Knee-joint, 511
Mackenzie, stricture of œsophagus, 555
Maclean, treatment of hæmorrhoids by taxis, 559
Macleod, chloral in insanity, 546
Madden, case of complex labour, 269
Mammary cancer, 456
Marriotte, poisoning by phosphorated ether, 276
McClintock, ovum in case of blighted embryo, 567
Meadows, retroversion of uterus cured by depletion, 571
Meatus, fragment of bug removed from external auditory, 143
Meckel's ganglion, removal of, 359
Meigs and Pepper on Diseases of Children, review of, 459
Menorrhagia, cannabis indica in, 550
Menses, retention of, 568
Mental diseases, prognosis in, 390
Mephitic gangrene, 179
Merkel, structure of zonula ciliaris, 564
Meryon, functions of sympathetic system, 527
Metropolitan Board of Health, review of Report of, 475
Milk-diet in treatment of diabetes, etc., 253
Minnesota State Medical Society, notice of Transactions of, 510
Missouri State Medical Society, notice of Transactions of, 218
Mitchell, bromide of lithium, 443
——, ulceration from use of bromides, 440
Molluscum fibrosum, anatomy of, 551
Morgan, syphilization, 562
Mortality committee report, infant, 493
Morton, orbital aneurismal disease, 36
——, statistics of amputation, 313
Mucous disease, 538
Muirhead, relapsing fever, 539
Müller, abnormal dilatation of cervix uteri, 570
——, enterotomy after reposition of bowel, 558
——, glycerine-lymph in vaccinating, 249

N.

Necrosis of femur without external inflammation, 556
Nerve tissue, regeneration of, 240
Nervous disorders, value of food in, 544
—— system, syphilitic disease of, 205
Neuralgia of jaw-bones, 48
New York, Transactions of Medical Society of State of, notice of, 214
Nitrous oxide, on the inhalation of, 61
Nobiling, stenosis arteriæ pulmonalis, 551
Norton, Infantile Diseases, notice of, 505
Nott, intra-uterine medication, 285
Notta, anosmia, 537
Nunneley, belladonna in constipation, 254
——, rupture of eyeball with good sight remaining, 268

O.
Obstetrical Society of London, notice of Transactions of, 484
Œsophagus, dilatation in stricture of, 555
Orbital aneurismal disease, 36, 46
Orchitis, treatment of acute, 213
——— ——— of gonorrheal, by debridement of testicle, 561
Osseous system, localization of diseased action in, 401
Ovarian tumour, extirpation of, followed by pregnancy, 287
Ovariotomy, Atlee's cases of, 428
Ovary, fibro-cystic disease of, 281
Ovum in case of blighted embryo, 567
Oxaluria, permanganate of potassa in, 283

P.
Packard, congenital phimosis, 384
———, splint for excised knee, 139
———, suicidal hanging, 140
Paget, necrosis of femur without external inflammation, 556
———, Surgical Pathology, notice of, 500
Pancoast, expectoration of supposed parasitic body, 447
Pancreas, cancer of, 150
Paralysis, strychnia in local, 255
Parkes, on the effects of alcohol, 530
Parry, relapsing fever, 336
Paterson, leucocythæmia of pregnancy, 274
Pathological Society of Philadelphia, Proceedings of, 140, 446
Patton, carbonate of ammonia in pneumonia, 374
Pavy, opium in treatment of diabetes, 194
Pepper, abscess of brain, 448
———, deposit of fat in abdominal walls, etc., of women, 287
———, tracheotomy in syphilitic laryngitis, 132
Pepsin, various preparations of, 535
Pericarditis, rheumatic, 204
Personne, pyrogallic acid, 275
Phenic acid in smallpox, 256
Phimosis, congenital, 384
Phosphorated ether, poisoning by, 276
Pleurisy, chronic, 457
———, diaphragmatic, 195
Pneumogastrics, influence of section of cervical, upon action of emetics and cathartics, 75
Pneumonia, carbonate of ammonia in, 374
Poland, statistics of subclavian aneurism, 196
Politzer on the Membrana Tympani, 233
Pollock, excision of the scapula, 211
Polypus, fibroid of uterus, removal of, 485
——— of larynx, removal of, 557
Pregnancy complicated with ovarian disease, 487
——— extra-uterine, 487
——— without menstruation, 568
Pre-pubic lymphatic gland, 529
Puerperal convulsions, 494
Pulse, influence of parturition on, 270
Putnam, spasmodic action of abdominal muscles, 288
Pyæmia, recovery from, 259
Pyrogallic acid, toxic action of, 275

R.
Ray, prognosis in mental disease, 380
Reeve, reliable preparation of conium, 283
Relapsing fever, 336, 539, 540
Renal diseases, disturbance of heart in, 246
Renfrew, scarlet fever, 541
Respiration, report on artificial, 536
Retinitis, 209
Reverdin, cause of gravity of anthrax, 563
Reviews—
Barnes, Obstetric Operations, 165
Flint, Physiology of Man, 182
Meigs and Pepper on Diseases of Children, 459
Report of the Metropolitan Board of Health, 475
Stricker's Studies in Experimental Pathology, 155
Surgical Memoirs of the War of the Rebellion, 174
Rhinoscleroma, 550
Richardson, cancer of testicle, 446
———, production of rapid general anæsthesia, 241
———, stricture of colon, 452
Ringer, insusceptibility of monkeys to strychnia, 572
Rinter, presentation of twins, 565
Risel, pathology of Addison's disease, 244
Rogers, Summer Mortality, notice of, 519
Roth, croupal bronchitis, 246
Rouse, acute orchitis, 213
Routh, fundal endometritis 273

S.
Salleron, on gonorrhœal orchitis, 561
Sanford, heart clot during parturition, 277
Sarsaparilla, use of, in syphilis, 255
Savotti, physiology of blood, 240
Scapula, excision of, 211
Scarlet fever, 541
——— ———, kidneys in, 542
——— ———, pyæmia a complication of, 543
Schwalbe, lymphatic spaces of eye, 564
Sebaceous tumours of cranial region, 208
Sée, physiological action of tobacco, 534
Seguin, Idiocy, notice of, 518
Sex of child, stethoscope as means of ascertaining, 274
Sherry wine, occurrence of a soluble lead salt and sulphuric acid in, 580
Sick-headache, bromide of potassium in, 282
Silver, cannabis indica in menorrhagia, 550
Smith, elephantiasis Arabum, 119
———, Etiology of Bright's Disease, 517
Sneezing, convulsive, 245
Snelling, improvement of Cammann's stethoscope, 284
Somnambulism, bromide of potassium in, 548
South Carolina Medical Association, notice of Transactions of, 507
Spence, results of amputations, 552
Spender, chronic constipation, 549
———, delirium in scarlatina, 541
———, pyæmia complicating scarlatina, 543
Stenosis arteriæ pulmonalis, 551
Stertor, 538
Stethoscope, improvement of Cammann's, 284
St. George's Hospital Reports, notice of, 203

Stokes, supracondyloid amputation of femur, 262
Stomach, rupture of, without external evidence, 575
Storer, chemical changes in sherry wine, 580
Stricker, Experimental Pathology, review of, 155
Stryehnia, chloral an antidote to, 572
———, in local paralysis, 547
———, insusceptibility of monkeys to, 572
———, poisoning by, treated by bromide of potassium, 420
Surgical Memoirs of the War of the Rebellion, review of, 174
Swan, bromides in epilepsy, 126
Sympathetic system, functions of, 527
Synclitism of fœtal head in labour, 325
Syphilis and chancre, Forster on, 198
———, notice of Coulson on, 229
———, preventive treatment of, 265
———, use of sarsaparilla in, 255
Syphilitic disease of nervous system, 204
Syphilization, 17, 562

T.

Tears, effect of secretion of, on circulation of brain, 249
Teevan, functional derangement of the male genitals, 250
Tendons, reproduction of divided, 258
Tents, introduction of uterine, 569
———, on danger of using tangle, 568
Testicle, cancer of, 446
———, chronic inflammatory deposit in, 149
Tetanus, calabar bean in, 579
———, chloral in, 260, 579
———, pathology of, 257
———, traumatic, 112
Thiry, preventive treatment of syphilis, 265
Thomas, induction of premature labour, 284
———, kidneys in scarlet fever, 542
Thompson, analysis of cases of stone treated by lithotrity, 264
———, rheumatic pericarditis, 204
Thomson, determination of degree of ametropia, 414
Thorne, permanganate of potassa in oxaluria, 283
Thudichum, kryptophanic acid, 529
Tobacco, physiological action of, 534
Torsion, 200
Townsend, enlarged inguinal glands, 148
Trachea, division of, 576
———, functions of, in respiration, 239
Trachoma, histology of, 266
Trephining, 261
Tubercle, clinical observations on acute, 206
Tumour, rapid growth of extra-uterine, 486
Tumours, on removal of subcutaneous, 554
Tuson, pepsin, 535
Tympanum, catarrh of, 199
Tyrrell, sulphites in phlegmonous angina, 579
Twins, observations on, 488
———, simultaneous presentation of heads of, 565

U.

Ulcero-membranous angina, 129
Urea, certain nervous symptoms occurring with excess of, 53
—— in normal blood, 184
Urethra, abscess of female, 494
Urine, suppression of, 153
———, variations in acidity of, 203
Uterus and ovaries, congenital absence of, 280
———, colpeurynter in mal-positions of, 274
———, depletion in retroversion of, 571
———, fibroid degeneration of, 486
———, perforation of, by sound, 571
———, reduction of inversion of, 495
———, rupture of, 490
———, treatment of prolapsus and procidentia, 495

V.

Vaccination, 536
Vagina, erectile cancroid of, 289
Van Hook, division of trachea, 576
Variola, prodromal exanthem of, 522
Verneuil, chloral in tetanus, 260
———, pathology of tetanus, 257
———, secondary hemorrhage, 257
Vertebra, dislocation and fracture of, 141
Vesicant, a new, 535
Vesico-vaginal fistule, on the operations for, 100, 422
Viscera, gunshot wound of abdominal, 451

W.

Wadham, aphasia, 207
Wagner, lactic acid in croup, 254
Wallace, use of the obstetric forceps, 71
Weidener, chloral in epilepsy, 256
Wernick, essential dropsy, 551
Whitehead, bromide of potassium, 381
———, mucous disease, 538
Wilks, disturbance of heart in renal disease, 246
Willard, constriction of large intestine, 451
———, rheumatoid arthritis, 151
———, single kidney, 453
Williams, pulmonary consumption, 206
Wilson, anæsthetic properties of carbolic acid, 534
Wines, place of, in ordinary diet, 533
Wolfring, trachoma, 266
Wollowicz, effects of alcohol, 530
———, influence of section of pneumogastrics, 75
Wood, acetic ether as an anæsthetic, 137

Y.

Yandell, bromide of potassium in sick-headache, 282
Young, pregnancy without menstruation, 568

Z.

Zonula ciliaris, structure of, 564

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Dissection will be carried on under the direct and personal supervision of the Assistant Demonstrators of Anatomy, with an abundant supply of material.

Fee for the Course $10.

In connection with the institution there will be delivered also during the Winter the following additional courses:—

II. Operative Surgery, by Dr. W. W. KEEN, . . . $10.

Special facilities will be afforded students, candidates for the Army or the Navy, or others who may desire to take a Course on Operative Surgery.

III. Bandaging and Fractures, by Dr. O. H. ALLIS, . . $10.

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WILLIAM W. KEEN, M. D., 1619 Chestnut Street. (3½—5 p. m.)

BOYLSTON MEDICAL PRIZE QUESTIONS.

The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, consists of the following Physicians:—

JOHN JEFFRIES, M. D.	CHARLES G. PUTNAM, M. D.	RICHARD M. HODGES, M. D.
J. B. S. JACKSON, M. D.	MORRILL WYMAN, M. D.	CALVIN ELLIS, M. D.
D. H. STORER, M. D.	HENRY J. BIGELOW, M. D.	SAMUEL CABOT, M. D.

At the Annual Meeting of the Committee, it was voted that Prizes of Two Hundred Dollars each, be awarded to HENRY P. WALCOTT, M. D., of Cambridge, Mass., and to G. D. DALY, M. D., of Lesueur, Minnesota, for dissertations on "Aphasia, or the Relation of the Brain to Speech."

The following are the questions proposed for 1871:—

1. Criticisms on the recent opinion of a medical writer, that the less serious Diseases of the Ear may be successfully treated by a well-qualified general practitioner, and the more serious affections by none.

2. Recent advances in the Pathology and Treatment of Cutaneous Disease.

Dissertations on these subjects must be transmitted, postpaid, to John Jeffries, M. D., Boston, *on or before the first Wednesday in April*, 1871.

The author of a dissertation considered worthy of a prize, on either of the subjects proposed for 1871, will be entitled to a premium of *one hundred and fifty dollars.*

The following are the questions proposed for 1872:—

1. The Pathology of the Malignant and Semi-Malignant Growths.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *two hundred dollars.*

2. The Pathology and Treatment of Sunstroke.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *one hundred and fifty dollars.*

Dissertations on these subjects must be transmitted as above, on or before the first Wednesday in April, 1872.

Each dissertation must be accompanied by a sealed packet, on which shall be written some device or sentence, and within which shall be inclosed the author's name and residence. The same device or sentence is to be written on the dissertation to which the packet is attached.

The writer of each dissertation is expected to transmit his communication to the

BOYLSTON MEDICAL PRIZE QUESTION.—Continued.

President, John Jeffries, M. D., in a legible handwriting, and with the pages properly secured together, within the time specified.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:—

1st. That the Board do not consider themselves as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2d. That in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

HENRY J. BIGELOW, *Secretary.*

Publishers of Newspapers and Medical Journals throughout the country are respectfully requested to notice the above.

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2. A Course on Practical Ophthalmoscopy.
3. A Course of Operations on the Eye.

By JAMES COLLINS, M. D.

4. A Résumé of the Diseases of the Ear.
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